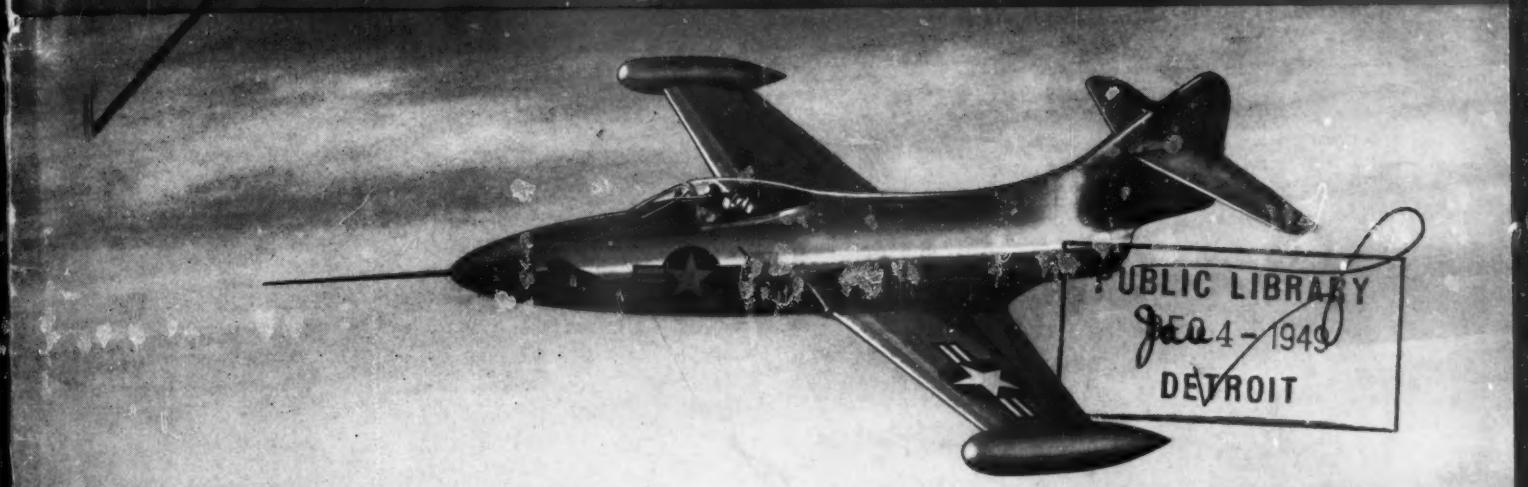
TECHNOLOGY DEPARTMENT

AVIATION WEEK

JAN. 3, 1949

A McGRAW-HILL PUBLICATION



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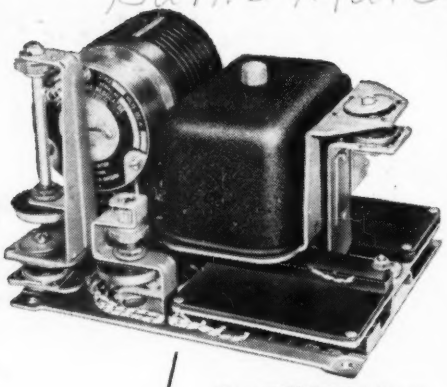
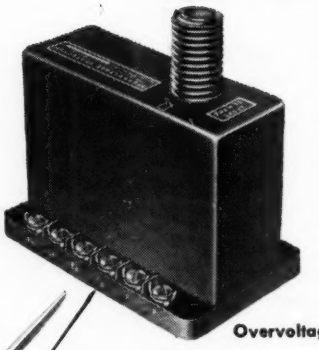
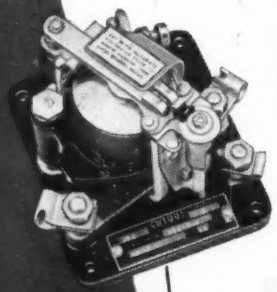


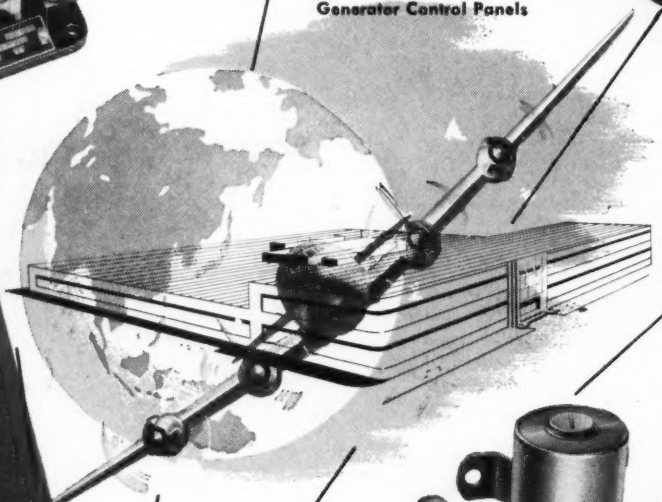
Generator Control Panels

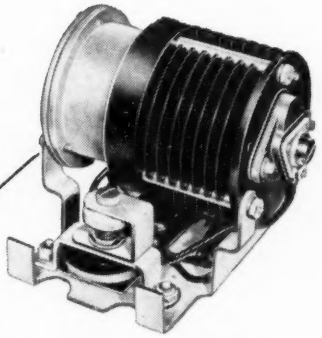


Overvoltage Protectors



Reverse Current Cutout (Maximum Capacity, 100 Amperes)





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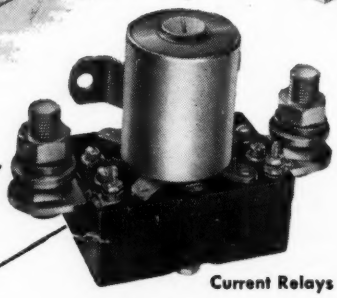

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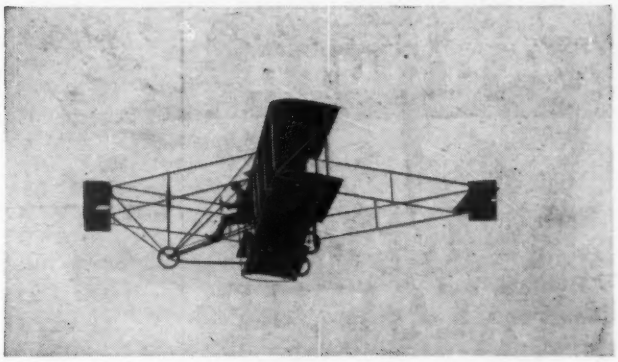
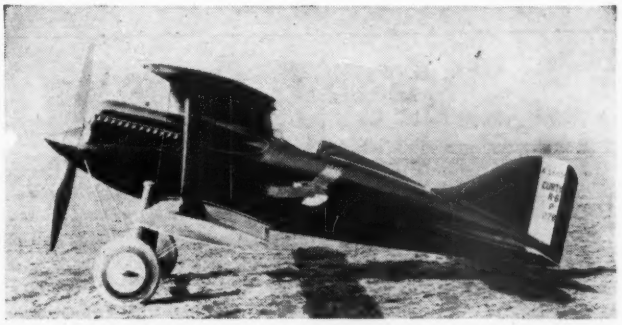
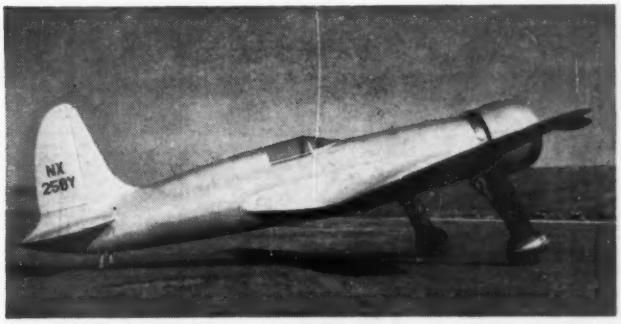
(each was a milestone in aviation history)



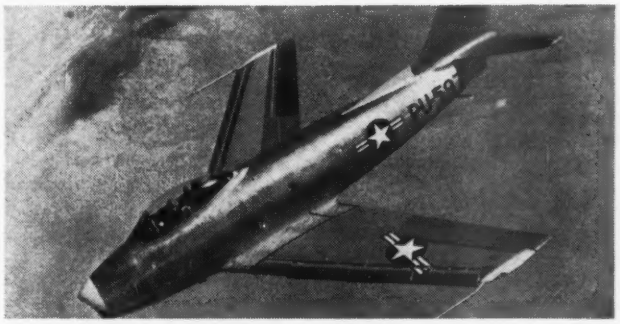
1 *46.5 m.p.h.* was the startling speed attained by Glen Curtiss in his "D" Pusher at Rheims, France, during the first Gordon-Bennett Trophy Race, August 29, 1909. (Smithsonian Photo)



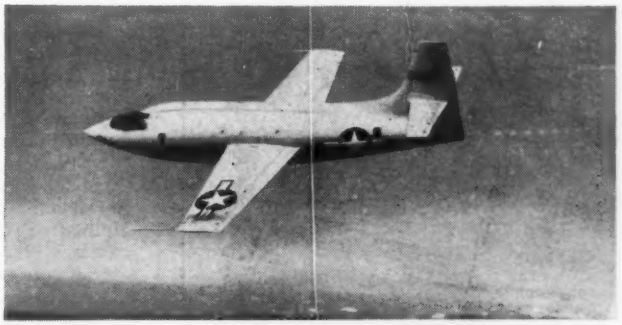
2 *222.96 m.p.h.* was a record established by General Billy Mitchell, flying in a Curtiss Racer over a 1-kilometer course. A 460-h.p. Curtiss engine powered this Army ship to its record on October 18, 1922. (U.S.A.F. Photo)



3 *352.38 m.p.h.* was a world's landplane speed mark established by Howard R. Hughes in his Hughes "H-1." A 1000-h.p. Pratt & Whitney Wasp Junior engine powered it to set this record at Santa Ana, California, on September 13, 1935.



4 *670.98 m.p.h.* is the official world's air speed record, set in North American's jet-propelled F-86-A. The mark was made by Major Richard L. Johnson, who flew the fighter with full military equipment at Muroc Air Force Base, California, September 15, 1948. (U.S.A.F. Photo)



5 *"More than 860 m.p.h."* is the figure released by the U.S.A.F. in describing speeds attained in the rocket-powered Bell X-1. The Air Force has announced that Captain Charles E. Yeager was the first of several pilots to fly faster than the speed of sound in the X-1 at Muroc during 1948. (U.S.A.F. Photo)

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AVIATION WEEK

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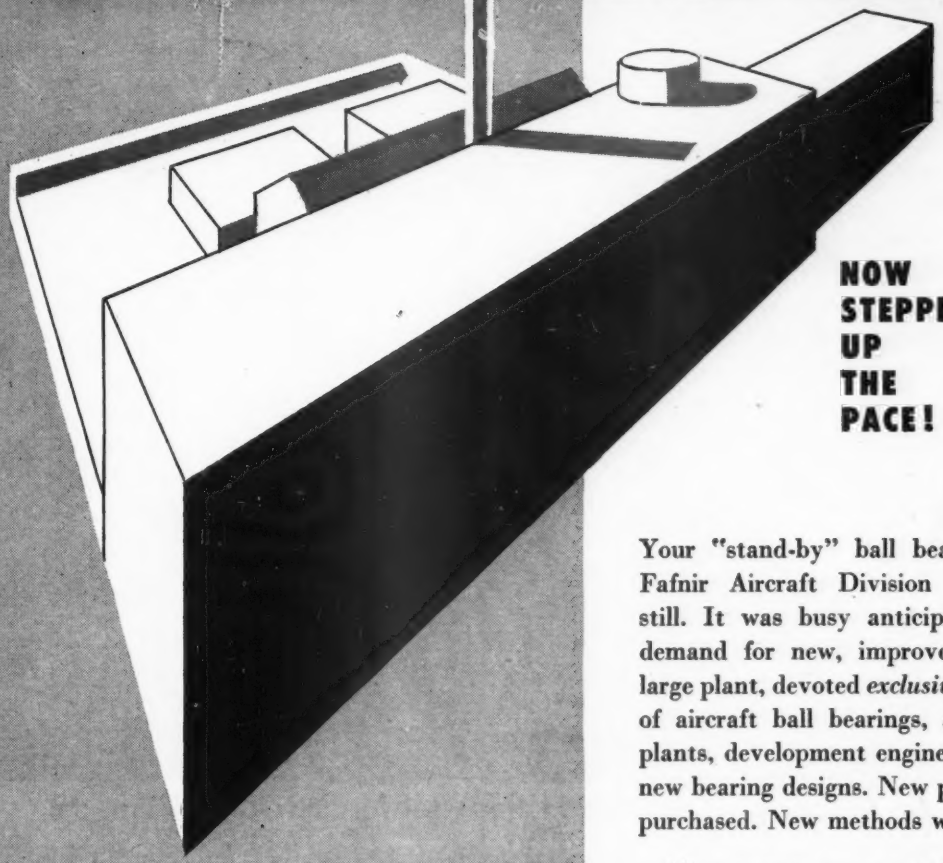

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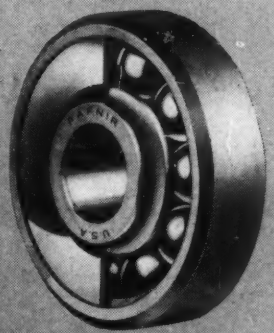

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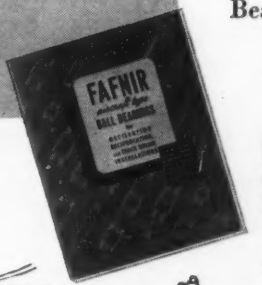

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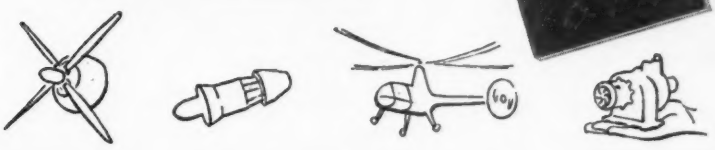

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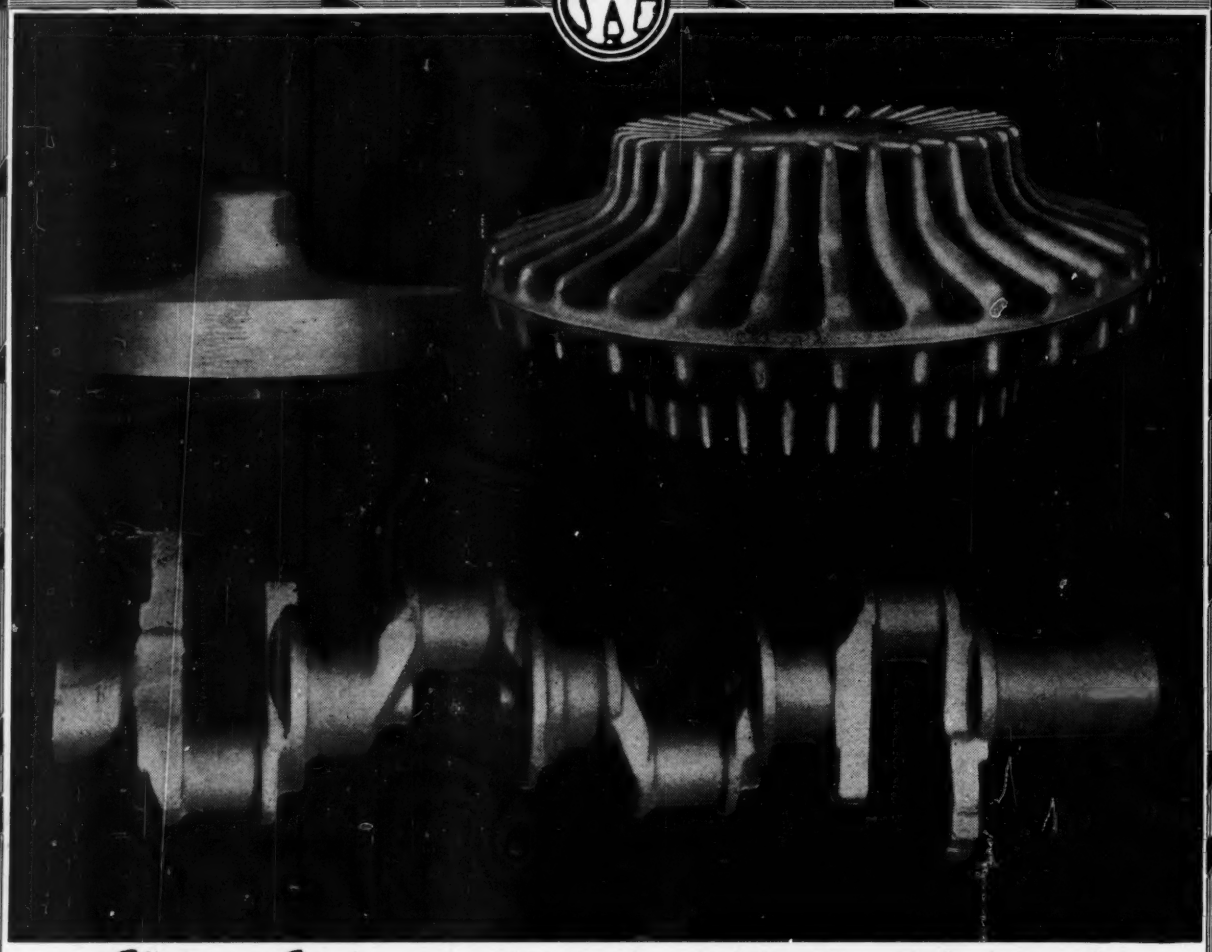

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NEWS SIDELIGHTS

Prototype Cost

The long-haul 15-ton-capacity cargo-transport proposed in the Mason Interdepartmental Committee's "tentative" program for a government-financed prototype development program would cost, allowing a reasonable manufacturer's profit, an estimated $1,500,000. ffi This compares with the $1 million price tag on Lockheed's Constellation of comparable size and performance—and lower operating cost. Only way airlines could obtain the proposed new type cheaper than the Constellation would be to have the government absorb all developmental costs of the aircraft, with no portion of them reflected in the sale price.

If this policy is followed, some informed sources argue, the way of wisdom would be to subsidize airline purchases of Constellations by having the government finance the portion of the price reflecting development cost. It is also reliably learned that the Mason Committee's proposed short-haul five-ton capacity cargo-transport would cost more and have a higher operating cost than the comparable Consolidated-Vultee Convair-Liner and Martin 2-0-2 and that its proposed two-and-half-ton capacity feeder would cost more (but have a substantially lower operating cost because of slower speed) than the comparable Northrop Pioneer and Beech Twin Quad.

ALPA Goals

The Air Line Pilots Assn., which recently settled a 10-month-old walkout with National Airlines, has authorized its leadership to establish a strike benefit buffer fund to ease the impact of future disputes on the ALPA treasury.

Future demands by ALPA on management are expected to center on pensions and other fringe awards. But the union also will fight for higher copilot's pay.

Sea-Air Strategy

At a hush-hush meeting in New York this week, American Federation of Shipping will decide whether to keep its Sea-Air Committee in business.

Original purpose of the committee was to get air rights for steamship lines. With all major overseas route awards already made, officials of most of the 11 companies that formed the committee now see little practical purpose in obtaining air rights.

Some of the officials, however, feel that a moral issue is involved and the committee should keep pushing for sea-air legislation. The likelihood appears to be that the "committee" will be continued as a one-man show consisting of Washington attorney Robert Kline, Jr.

Even if Sea-Air Committee is abolished, though, the federation will support legislation in the next Congress separating subsidy and service mail payments to air carriers.

Air Mail Boost

The 1948 air mail volume will top 1947 volume by around 15 million lb. Post Office reports an 84,825,460-lb. volume for the first 11 months of last year, compared with a 71,579,925-lb. volume for the same 1947 period.

Although air parcel post volume has fallen far short of expectations, it did boost the total air mail volume substantially during the months following its initiation in September.

Total September air mail volume was 668,549 lb. over August; October volume, 1,344,015 lb. over August; and November volume is estimated at 1,456,213 lb. over August.

Post Office officials credit the major portion of these increases to new parcel post business. When legislation authorizing the new service was under Congressional consideration early this year, Post Office officials predicted air parcel post volume would develop to about 10 percent of current surface parcel post volume. This would mean an air parcel post volume of approximately 600 million lb. a year.

Prototype Corporation

Legislation setting up a $500 million government corporation to finance the development and production of cargo planes may be introduced by Sen. Edwin Johnson (D., Colo.) and Rep. John Kennedy (D., Mass.).

An "aircraft development corporation" would be headed by five Presidentially-appointed directors, assisted by a six-member industry advisory board. The corporation would lease planes to airlines and others.

The proposal is another approach to a government-financed commercial plane development program. Under the old Brewster-Hinshaw measure an interagency board would finance development of transport, as well as cargo, types, but would have no authority to finance production or purchase planes for leasing. The proposal of Glenn Martin would authorize the Commerce Department to carry on a $200,000,000 a year development and purchase program, and lease planes to the airlines.

Airlift Record

American and British air crews on the Berlin airlift celebrated the end of six months leapfrogging the Russian blockade by delivering over 6000 tons of supplies to Berlin residents for two days in a row.

In the first six months of operations the joint RAF-USAF transport force has delivered 700,172 tons of cargo to Berlin. The transport force has flown 34,000,410 miles.

Gen. Lucius Clay, U. S. commander in Germany noted that during the last two months of poor flying weather, the 4000 ton daily minimum delivery into Berlin had been met and that there would be no food shortages in the city this winter although unusually severe weather would produce suffering from the severe cold due to inadequate supplies of fuel.

Meanwhile spare parts to keep the USAF C-54 fleet operating loomed as a tougher problem than weather in restricting the airlift.

Ferguson's Indecision

Senate Investigating subcommittee, headed by Sen. Homer Ferguson (R., Mich.) has not decided whether to cover airline subsidization in its forthcoming annual report. The report is scheduled for release in about three weeks.

The subcommittee's staff has been investigating air subsidies for almost a year.

In launching the investigation, Ferguson announced that he wanted to find out whether politics had influenced Civil Aeronautics Board route awards involving mail pay subsidies, Ferguson was chairman of the Senate committee that in 1947 heard the much-publicized charges and counter-charges between Sen. Owen Brewster (R., Me.) and Howard Hughes.

INDUSTRY OBSERVER

► **Douglas Aircraft Co. has now built more than 500 of its AD (Skyraider) series of Navy attack planes. Model now in production at the El Segundo plant is the AD-3, powered by a Curtiss-Wright compound engine. Next version of the AD-4 will also be powered by a compound engine and be equipped with auto-pilot, improved radar and a redesigned cockpit. Both the AD-3 and AD-4 will have beefed up landing gear and feature two-seater versions for use as radar countermeasure planes and weather scouts. U.S. Air Force is also looking over the Skyraider series as a possible addition to its tactical striking force of ground-support planes. Top speed of the latest Skyraider models is around 400 mph.**

► Latest Grumman F8F-2 (Bearcat) fighters have an enlarged vertical stabilizer to provide increased stability for firing the plane's 20mm wing cannon. It also has a new type of gunsight computer and a redesigned instrument panel.

► **Navy interest in the North American XSN2J, an improved version of the same company's SNJ has cooled. Present training plans call for retention of the SNJ as the standard Navy trainer.**

► Watch for a significant increase in heavy transport procurement in the U.S. Air Force fiscal 1950 budget now being printed for presentation to Congress next week. Air Secretary W. Stuart Symington let part of the cat out of the bag during his recent speech to airlift pilots in Berlin when he hinted substantial transport replacements were in the offing. However the heavy strategic transports to be purchased in fiscal 1950 will not roll off the production lines until 1952 at the earliest. By 1952 military Air Transport Service expects its current C-54 transport fleet to be obsolescent. Best bets for the 1950 transport allocations are the Douglas C-124A and the Boeing C-97.

► **Experimental towing of a Sikorsky H-5 helicopter by a fixed wing airplane at Wright Field is reported so successful that it opens new possibilities for extending basic short range of the rotary-wing craft, for rescue and other purposes. Germans towed a rotary-wing kite in essentially the same manner behind a submarine.**

► "Fourth of July pinwheel" is thumbnail description for the new position light arrangement for a helicopter, demonstrated recently on a Sikorsky HO3S-1 craft at Anacostia Naval Air Station. White lights are faired into the tips of the three rotor blades with wiring placed inside the rotor blades. Whirling tip-lights form a continuous halo effect, overcoming one hitherto serious objection to helicopter night flight.

► **Destruction of the Republic XF-12 four-engine long-range reconnaissance plane in Choctawhatchee Bay, Fla. last November was due to an engine nacelle fire, which burned off a wing panel. Two of the seven lost their lives in the accident. Meanwhile, the remaining XF-12, which has been undergoing factory repairs of damage due to a belly landing, has been returned to Wright Field for continuation of the test flight program.**

► Contrary to recently published reports, there are no abnormal restrictions on the operation of the Republic F-84 Thunderjet fighter. The type was grounded temporarily in September following two accidents at air show demonstrations but was later returned to flight status without tip tanks installed. In the ensuing months field modifications have been made to about 400 airplanes and the tip tank restrictions removed upon completion of these modifications. The F-84 is, however, subject to the usual maneuverability and maximum speed restrictions of all jet aircraft of its tactical type including maximum 5G load factor with tanks installed, 8G load factor without tanks, Mach number 0.8 maximum speed and one percent turbine overspeed. The F-84 actually has one of the best safety records of any military aircraft with only four fatalities out of more than 20,000 hr. of operation.

► **Next experimental fighter in the Grumman line will feature sweptback wings. Once plans were in the mill to add sweepback to the wings of the Panther (F9F) but the change was deferred to the XF10F-1 now under construction at Grumman.**

NEWS DIGEST

DOMESTIC

T. P. Wright, vice president in charge of research, Cornell University, and former Civil Aeronautics Administrator, was named full member of National Advisory Committee for Aeronautics, with his term expiring Dec. 1, 1953. He had been serving the unexpired term of the late Orville Wright.

Airlines suit against the Port of New York Authority was due to come up for hearing today. Suit, seeking to have Authority compelled to honor leases signed with the City in 1945, was filed Dec. 13 and the Authority was given 20 days in which to answer.

George F. McClellan, personnel director of United Aircraft Products Inc., Dayton, Ohio, for 12 years, died in Good Samaritan Hospital, Dayton, after a short illness. He was 70.

Civil Aeronautics Administration has forbidden racial discrimination at Washington National Airport. Action was taken after a Negro attorney from Philadelphia had been refused food service and had filed suit against CAA Administrator D. W. Rentzel. CAA previously had issued no anti-discrimination regulation because of a belief it would conflict with Virginia statutes, but the Justice Department assures Rentzel he has authority for the new rule.

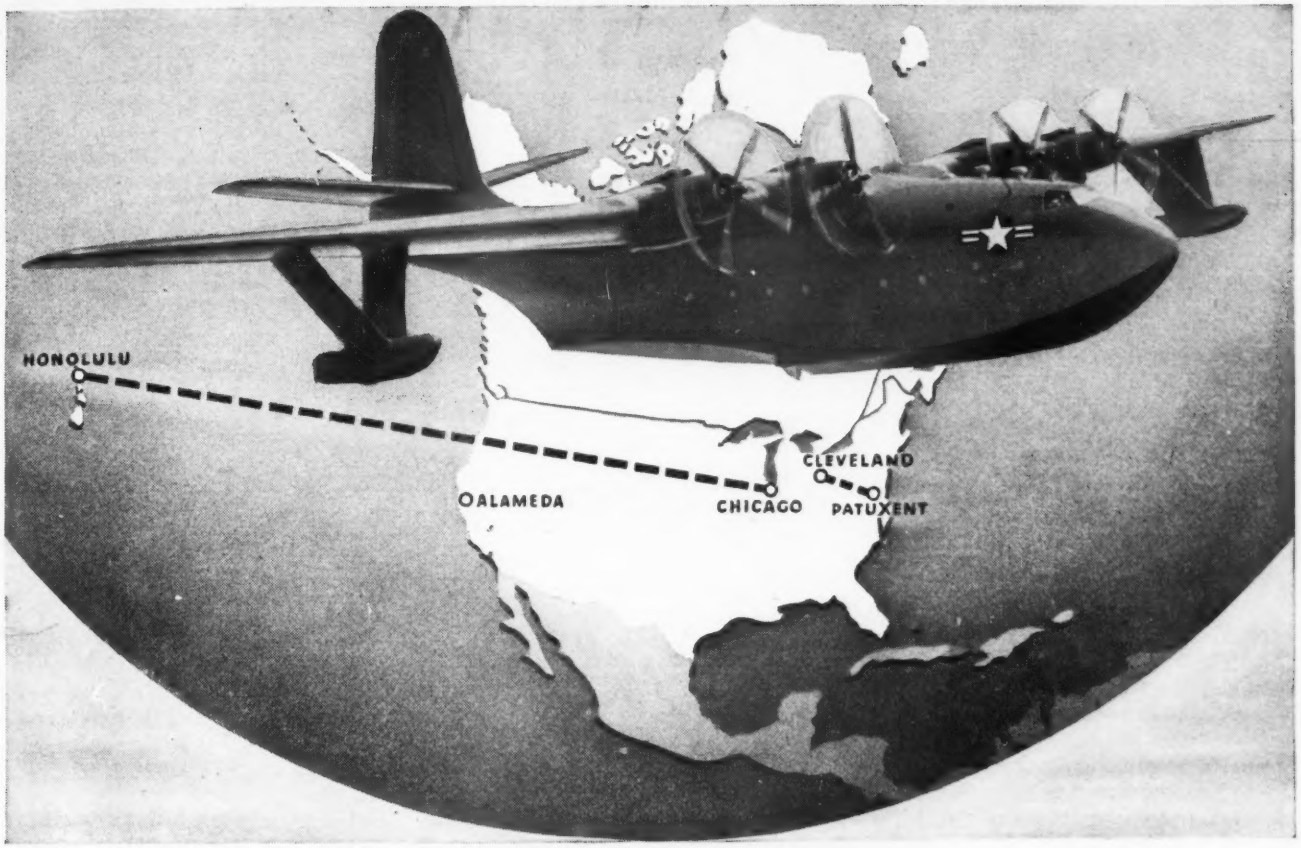
Northwest Airlines asked Civil Aeronautics Board permission to cancel four-cent-a-mile tariff for skycoach service between Washington, D. C., and Minneapolis which was to have become effective about Jan. 8.

Boeing XB-47 flew 1000 miles at an average speed of 500 mph. USAF said flight, from Moses Lake AF Base, Wash., to Kirtland AF Base, N. M., was routine and was not an effort to establish new record.

FOREIGN

Crashes of airline planes within three days in Spain, Greece and China left 84 persons dead or missing. An Iberian Air Lines C-47 struck a mountain near Tarragona, Spain, killing 27; a Czech National Air Lines C-47 carrying 24 passengers and crew crashed in the mountains of Southern Greece, with fate of its occupants unreported; and a China National Aviation Corp. C-54 crashed near Hong Kong, killing all 33 persons aboard, including Quentin Roosevelt, vice president of CNAC and a grandson of President Theodore Roosevelt.

Col. Georges Thenault, French airman and commander of the Lafayette Escadrille, World War I unit of American volunteers, died in Paris.



Martin MARS Writes the Future of Seaplanes in Today's Navy Records*

With a series of record-breaking flights, the Navy's new Martin JRM-2 Caroline Mars has refocused attention on the importance of seaplanes in modern military supply planning. And further emphasized the reputation of Martin flying boats for high performance, endurance and reliability! First the Caroline Mars cracked the non-stop seaplane record with a 4748-mile-flight from Honolulu to Chicago. A few days later, this mighty ship carried the highest airborne tonnage in history, flying 68,283 lbs. from Patuxent, Md., to Cleveland. Now, this latest Martin Mars is in service in the Pacific, regularly carrying 39,000 to 40,000 lbs. over the 2,400 miles from Alameda, Cal., to Honolulu!

Said Vice Admiral John D. Price, Deputy Chief of Naval Operations: "Squadron VR-2 with its 145,000-lb. JRM-1 flying boats has provided outstanding evidence of the significant role which large flying boats can play in meeting the logistic needs of national defense. Requiring no prepared forward bases . . . the flying boats can provide air lift in large tonnage volume with efficiency and economy of operation and complete mobility as to bases. Carrying even larger loads than its sister ships, the Caroline Mars will provide an important boost to the total air lift available in the Pacific."

It's another Martin "first" . . . building air power to save the peace, air transport to serve it!

THE GLENN L. MARTIN CO., BALTIMORE 3, MD.

* **RECORD-BREAKING FLIGHTS:**

	Distance	Payload
HONOLULU TO CHICAGO	4748 miles (plus 42 crewmen and passengers)	14,000 lbs.
PATUXENT, MD. TO CLEVELAND	390 miles (longer than the Berlin air lift)	68,283 lbs.

Martin AIRCRAFT

Builders of Dependable Aircraft Since 1909

Vol. 50, No. 1

AVIATION WEEK

Jan. 3, 1949

Canada Negotiating Rights to Build F-86A

Dominion Minister says output to begin in few weeks, but U. S. experts see delay.

By Robert Hotz

North American Aviation Inc. of Inglewood, Calif., is negotiating with the Canadian government on manufacture of its F-86A jet fighter under license in Canada.

The F-86A is the U. S. Air Force's fastest fighter and now holds the world aircraft speed record of 670 mph. set last fall by Major Dick Johnson at Muroc. Licensing of a first line tactical aircraft for foreign production would be an unprecedented peacetime action and is indicative of how tightly the joint U. S.-Canadian defense ties are being drawn.

▶ **Deal With Government**—North American negotiations with Canada follow closely similar negotiations with Fairchild Engine and Airplane Co. of Hagerstown, Md. (AVIATION WEEK, Nov. 1) for Canadian production of the Packet (C-82) military transport designed particularly for paratrooper operations. Neither North American nor Fairchild have signed final agreements with the Canadians. In both negotiations the American companies have dealt with the Canadian Ministry of Supply which in turn will select a Canadian firm to do the work.

Canadian Supply Minister C. D. Howe recently visited Washington for a series of conferences with defense leaders in the Pentagon on standardization of Canadian and U. S. defense equipment and production facilities. During the past six months there has been a marked trend toward shifting considerable military aircraft production from England to Canada, particularly large transport and bomber types, leaving factories in England to concentrate on fighter types for western European countries.

▶ **C-100 Tested**—First inkling of the North American negotiations on the F-86A came from Canadian Defense Minister Brooke Claxton who announced in Ottawa that the F-86A would go into production in Canada within a very few weeks. Claxton also said the F-86A along with the Avro C-100 (AVIATION WEEK, Nov. 8) twin jet all-weather fighter, would be the Royal Canadian Air Force standard fighter types.

The C-100 powered by two Rolls Royce Avon jet engines has been completed at Avro's Malton, Ontario plant and is now undergoing its test program. Claxton indicated C-100 production would begin soon.

Claxton's estimate on early Canadian production of the F-86A appears overly optimistic. American technicians involved in the program believe that Canadian production is at least 18 months and more likely at least two years away. The Canadians have been anxious to get about 20 F-86-As now being built under USAF order for operational testing and technical use and then go into production.

▶ **Provide Parts**—On deals similar to the one now under discussion North American has supplied a prototype and parts for from 10 to 20 additional planes to begin an assembly line. This was done with Commonwealth Aircraft Co.'s production of P-51s in Australia and Brazilian production of the AT-6.

North American's attitude toward the Canadian licensing deal will probably depend in large measure on the fate of USAF appropriations in the fiscal 1950 budget. If USAF funds are cut back considerably, as now appears likely, North American would be more interested in making the F-86 in its own plant and selling them outright to the Canadians. If the five-year 70-Group procurement program continues at its required level, then North American will be fully occupied and more susceptible to a licensing agreement.

▶ **Wary of Licensing**—Since the Douglas licensing agreement with Canadair on DC-4M production, American manufacturers have been wary of any Canadian deals that might put Canadian manufacturers into competition with them in the foreign sales markets. Canadian wages in the aircraft industry are about 40 percent lower than those in American plants giving the Canadians a considerable price advantage in foreign markets.

Negotiations with North American concern only a licensing agreement on the F-86A airframe. No provisions have been made yet for engines. The USAF version of the F-86A is powered by a General Electric J-47 axial flow jet engine producing 5000 lb. static thrust. Supply of these engines is still critical but is expected to ease this spring after the new General Electric plant at Lockland, Ohio, gets into full production on this type. Production of both the F-86A and the B-45A four jet bomber also powered by J-47s, has been slowed by the engine shortage. .

Observers speculated on the possibility of the Canadians using the Rolls Royce axial flow Avon jet engine now powering the C-100 in the F-86A. The Avon is supposed to produce 6500 lb. static thrust making it the most powerful jet engine now available. The Canadians are also developing a more powerful version of their Chinook axial flow jet engine that might also be a possibility for the F-86A.

ANDB to Develop New Navigation Aids

Air Navigation Development Board has been asked to develop three new electronics devices to aid in landing, takeoff and taxiing of planes, as a major step in the 15-year billion dollar all-weather navigation aids program.

The devices:

- **Airport Surface Movement Detection Equipment.**
- **Airport Approach Control Timer.**
- **Interim Private Line Visual Communications System.**

Surface movement equipment would enable a control tower operator to "see electronically" taxiing planes on the airport and any obstructions, regardless of visibility, eliminating blind spots which hamper control on many of today's large airports. One type of this equipment using radar to control taxiing aircraft has been developed under an Air Force contract by Gilfillan Bros. of Los Angeles.

▶ **Timing Device**—The Airport Approach Control Timer is designed to

speed up the flow of aircraft into the final approach to the landing runway while maintaining a proper safety separation between the planes. One type of this equipment made by the General Railway Signal Co. has been under test at New York City's LaGuardia Field for over a year.

The Interim Private Line Visual Communications System is designed to replace present voice communications on all routine traffic control matters with visual communications. Traffic control instruction requests and answers will be registered visually on displays in ground air traffic control centers and in the cockpits of planes aloft. Voice communication channels would be left free for emergency and unusual traffic control problems.

► **Damon to Head**—The ANDB, headed by Ralph S. Damon, chairman, and Dr. Douglas Ewing, technical director, coordinates and directs the radio and electronics research program of the Air Force, Navy, Army and CAA.

Air Navigation Panel of the Air Coordinating Committee, which called for the developments, and which is a government-aviation users group, including airline, airport operator and pilot groups, is now considering operational requirements for a number of other devices and systems in the overall program. These include:

- An airborne display for symbolic air traffic control data.
- A flight path planning element.
- A display for detail flow control.
- Airport time utilization equipment.
- An airborne transponder (radar identification beacon) for use in connection with the private line visual communications system.

The Air Navigation Panel has also established a priority list for equipment to be developed by ANDB for the five-year transition period in which existing facilities will be used simultaneously with new devices, and has approved navigation aid equipment installation programs for fiscal 1948 for Navy, Air Force and CAA with coordinated procedures for use of the new equipment.

TARGET PLANE TEST

Radio-controlled OQ-19A built by Radioplane Co. of Van Nuys, Calif., has successfully passed its final Air Force acceptance tests at Wright-Patterson Air Base. Plane has a top speed of 220 mph. and weighs 300 lb. The OQ-19A has been controlled from the ground during all conventional flight acrobatics including loops, rolls, wingovers and high speed dives. It will be used as a target plane for fighter pilots, bomber gunners and anti-aircraft artillery. At a 200 yard range the OQ-19A has the appearance of a normal fighter at 500 yards range. It is launched from a 60 ft. catapult by a rocket charge that gives a take-off speed of 80 mph. and recovered after completion of its flight by a parachute.

CAA Report Cites 1948 Air Advances

U. S. civil aviation in 1948 showed significant advances in:

- Airline safety record.
- Increased domestic and international air freight.
- Improved air navigation aids.
- Increased industrial flying.
- A 14 percent increase in the number of airports.

Delos W. Rentzel, administrator of civil aeronautics, last week reported in a year-end CAA summary that scheduled U. S. domestic and international air travel showed a record estimated at only 1.3 fatalities per 100 million passenger miles in 1948 or less than half the fatality rate of 2.9 in 1947.

► **Airline Accidents**—Through Dec. 27 there were only five airline accidents on U. S. domestic routes with a combined death toll of 83 passengers and 14 crew members. International operations showed only one accident by a U. S. operated plane with 20 passengers and 10 crew lost. This total of 103 passenger fatalities in six accidents compares with a 1947 record of 219 lost in eight accidents.

Scheduled domestic and international express and freight increased 47 percent in 1948 over 1947, to an estimated 143 million ton miles from 97,568,958 ton miles. Greater part of this increase was in domestic freight which showed an estimated 52 percent increase over last year figures.

► **Aid Progress**—Rentzel cited progress in the RTCA 15-year program of navigation aids for civil and military use during the year pointing out installation of 409 VHF omni-directional ranges is nearing completion, with 375 now completed and 269 calibrated and ready for operation. Airlines are operating with lower weather minimums at 79 stops as result of use of radar and radio landing aids. All major airlines and three feeders are now authorized to operate down to minimums of 300 ft. ceilings and ¾ mi. visibility with ILS and five airlines have had a second reduction of minimums following a good operation record under the first reduction. At five of the 79 instrument landing system installations precision beam radar equipment is also in operation.

Industrial flying in agriculture, conservation, public health, and other business uses is showing a rapid growth, the administrator said, but adequate statistical reporting systems on this phase of aviation are not yet developed. Millions of acres were treated for weed control by 2,4-D applied from the air, and more than 100 communities contracted for aerial spraying with DDT for insect pest controls.

► **Airport Increase**—Number of the nation's civil airports increased 17 percent in 1948, from 5258 Jan. 1 to an estimated 6100 at year's end. Federal air-

port aid supplied $48,702,276 in 462 grant offers during the year, approximately one fifth of which was for 149 new airports. Since start of the program in 1946 a total of 594 grant offers for total outlay of $62,092,244 have been made. As of Nov. 1, there had been 132 projects completed, with an estimated 18 more projects which were expected to be complete by the end of the year.

Total number of pilot certificates reached an estimated half-million at year's end, an increase of nearly 76,000 from 1947, but rate of issuance of certificates had slowed down, reflecting slackening in training. Only 115,000 student pilot certificates were issued, a drop of 40 percent from last year. Private pilot licenses issued were estimated at 85,000, a drop of 29 percent and 1100 airline pilot ratings issued showed an 11 percent drop from the number put out in the previous year. Exception to the decreases was seen in the commercial pilot licenses, which showed 7200 issued in 1948 as against 6668 in 1947.

Rentzel's statisticians estimated total civil aircraft production for the year was 7500 as compared to 15,617 in 1947. Production of two-place planes dropped 54 percent and of three, four and five-placers 52 percent. Larger proportion of the four-passenger planes for executive and agricultural uses was seen as another indication of the development of new industrial uses of civil aircraft.

Turbo-Wasp Passes Qualification Test

The Pratt & Whitney JT-6B Turbo-Wasp, U.S. production model of the British Rolls-Royce Nene, has passed its official 150-hour qualification test successfully and been rated at 5000 lb. static thrust. Already in production, first deliveries to the Navy were made in November.

First production models of the engine are being shipped directly to Grumman Aircraft for installation in the F9F-2 Panther fighter. The airplane will also accommodate the Allison J-33 engine in the F9F-3 model. Although the Panther is the only airplane so far scheduled for Turbo-Wasp power, the engine also can be fitted to the Martin P4M-1 Mercator search airplane.

Processing of the British-designed engine for U.S. production required complete redrawing of design drawings, complete redesign of the accessory case to fit U.S. Navy accessories, substitution of magnesium for aluminum in several assemblies and the design and fabrication of new tooling.

About 7600 different tools were required to manufacture the engine's 900 different types of parts. Of this total, Pratt & Whitney is producing about 500 with the remaining 400 being supplied by subcontractors.

Award of the Nene contract to Pratt & Whitney by the Navy was designed to provide experience in turbojet production while Pratt & Whitney engineers complete design and test work on new turbojet and turboprop engines. The company previously had completed 130 Westinghouse 19B axial-flow turbojet engines under a contract provided for the same purpose.

Proposed Pay Boosts

Salary increases for top government aviation officials have been recommended by a Senate subcommittee headed by Sen. Ralph Flanders (R., Vt.), and are scheduled for Congressional approval by Jan. 20, start of the new administration.

Boosts proposed by the subcommittee and endorsed by the Commission on Reorganization of the Executive Branch, headed by former President Herbert Hoover:

- **Secretary of Defense** (James Forrestal), from $15,000 to $25,000 a year;
- **Secretary for Air** (W. Stuart Symington), from $15,000 to $25,000;
- **Chairman Munitions Board** (Donald Carpenter), from $14,000 to $20,000;
- **Chairman, Research and Development Board** (Karl Compton), from $14,000 to $20,000;
- **Director of Aeronautical Research** National Advisory Committee for Aeronautics (Dr. Hugh Dryden), from $10,330 to $17,500;
- **Chairman, Civil Aeronautics Board** (Joseph O'Connell), from $12,000 to $17,500; CAB members from $11,500 to $17,500;
- **Assistant Secretary of Commerce for Air** (John Alison); from $10,000 to $17,500;
- **Second Assistant Postmaster General** (Paul Aiken), from $10,330 to $17,500.

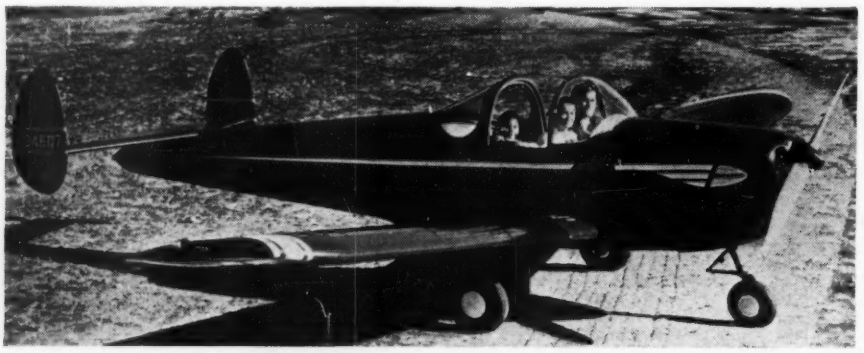
After action has been completed on "first line" official salaries, a subcommittee spokesman said the group would propose boosts for "second line" officials and at that time review the present $12,000-a-year salary of the Administrator of Civil Aeronautics.

Hughes' Gifts

Howard Hughes has established a new series of fellowships in creative aeronautics at the California Institute of Technology.

The fellowships will include: A gift of $1500 to Cal Tech to cover tuition and research expenses of the fellow; $1500 or more additional to each fellow depending on his individual qualifications; and a salary of not less than $2000 to each fellow for advanced development work at Hughes Aircraft Co., Culver City, Calif. plant.

Aim of the fellowships is to develop young aeronautical engineers capable of dealing with the problem of advanced



1949 ERCOUPE CLUBAIR

First pictures of the new 1949 deluxe Ercoupe, christened the ClubAir, show the plane's new bubble plastic windshield and blue and cream standard paint covering. Plane is designed with a junior seat for child weighing up to 75 lb. behind the main seats as shown in smaller photo. The 85 hp. Continental-powered Ercoupe has approximately same performance as 1948 model, restyled cabin interior and improved soundproofing. Range is quoted at 430 miles at 110 mph. cruising speed. Colors other than the standard may be had at an additional cost. Plane is pricetagged at $4090 flyaway Sanders Aviation, Inc., Riverdale, Md.

theoretical aeronautics. Application forms for the fellowships can be obtained from the dean of graduate studies, California Institute of Technology, Pasadena 4, Calif. Applications must be submitted before Feb. 15. Announcement of awards will be made Apr. 1, 1949.

Miami Air Show Features Midget Race

Second annual Continental Motors Trophy Race for midget planes with 190 cu. in. displacement engines will be the main attraction of the Miami (Fla.) Air Maneuvers at OPA Locka Airport, Jan. 7, 8 and 9. Last year's Continental race was won by Bill Brennand, in a Steve Wittman special "Little Buster". The Midget racers will participate in elimination heats during the first two days of the maneuvers with the final race on the third day. Entries in the Goodyear races at Cleveland are expected to compete.

In addition to the $10,000 prize money and the Continental trophy for the midget racers, an international aerobatic competition will be held with separate divisions for men and women stunt flyers, and $3500 in prize money.

Air Force and Naval Aviation will participate in the three day show with jet plane demonstrations.

Officials of the maneuvers include Roger W. Kahn, New York, official timer; Mike Murphy, Findlay, Ohio, starter; Charles Logsdon, Washington, NAA and FAI representative, and S. C. Huffman, general manager. Headquarters for the show is at the Columbus Hotel in Miami.

AIA Export Committee

George B. Gelly, Washington representative of Douglas Aircraft Co. has been elected chairman of the export committee of Aircraft Industries Assn., succeeding Henry Correa, export manager of Bendix Aviation Corp.

J. Carlton Ward, chairman of the board, Fairchild Engine and Airplane was elected honorary chairman, succeeding Robert Gross, president of Lockheed Aircraft Corp. R. R. Reger, export sales manager of Sperry Gyroscope Co. was elected vice chairman succeeding Stewart W. Towle, Jr., of Northrop Aircraft Inc.

Braniff FEs

Twenty-six flight engineers now taking a three-month training course will become third men in the cockpits of Braniff Airways' DC-6s on Feb. 28. All licensed pilots, the Braniff flight engineers will be eligible for promotion to first officer and then to captain in accordance with their seniority.

Bonanza Trying for Distance Mark

Beech plane, with Odom at controls, fitted with wingtip fuel tanks for hop from Honolulu to New York City.

By Alexander McSurely

A heavily-gassed Beech Bonanza, with special wingtip tanks, was scheduled to take off about Jan. 3 from Honolulu, piloted by Capt. William P. Odom, for an attempted 5010 mile non-stop great circle flight to New York, seeking a new light-plane long distance mark.

Flight if completed would more than double the present international record for planes in the power category of the Bonanza, held since 1937 by two Russian fliers, A. Goussarov and V. Glebov. They flew 2061.703 miles from Moscow to Krasnoyarsk.

▶ **Odom to Pilot**—Former ATC and bomber ferry pilot, Odom is best known for his two record round-the-world flights in 1947 in a Douglas A-26, the first with Milton Reynolds, and the second solo, when he made the trip in a new record time of 3 days, one hour 5 minutes.

The Bonanza record attempt is sponsored by Beech Aircraft Corp., as a "tangible demonstration of reliability and potentialities of the Bonanza," Walter H. Beech, president, stated.

It is indicated that military authorities are interested in possible long-range uses of the small all-metal four-placer as a robot which would be shown practicable by such a flight, successfully accomplished. Among such potential uses: an expendable carrier of equipment or personnel, a weather or photo reconnaissance plane, or radar decoy.

▶ **Carried by PanAm**—Odom piloted the plane from Wichita to Los Angeles in a 1200 mile nonstop shakedown hop, against headwinds averaging 15 to 20 mph. at an average speed of 114 mph. From San Francisco, his next stop, the plane was to be carried as cargo to Honolulu in the hold of a Pan American clipper plane.

Bill Sampson, Beech service engineer, accompanied Odom to Honolulu to supervise final preparations for the flight. Beech officials said that the engine had been given a "200 percent" inspection covering every individual part, as a precaution against mechanical failures.

▶ **Added Gas**—To the normal 40 gallon fuel load of a standard Bonanza, 220 gal. of extra gas has been added, 100 gal. in a cabin fuel tank, and 60 gal. in each of the two wingtip tanks. Odom will carry an extra 12 gal. of oil, above the normal 10 qt. capacity.

According to Odom's tentative flight plan he hopes to get an average speed of around 150 mph. if he had assisting prevailing winds of 10 mph. over the Pacific and 25 mph. over the U. S. He planned to cruise at 14,000 ft. much of the way, and to carry enough oxygen for high altitude flight of 12 hr. He was wearing an ordinary business suit and top coat, depending on the plane's cabin heater installation, and took along a toothbrush, razor and clean shirt as his luggage. For food, enroute, he carried canned rations that heated automatically when the cans were opened. He also carried standard life-raft and survival equipment.

▶ **Fuel Control**—Most economical fuel control is indicated at a consumption rate of 9 gal./hr. after takeoff, gradually tapered down to 5.5 gal./hr. at the finish. Sufficient fuel is being carried for a 32-34 hr. flight with six hr. cruising reserve.

Wingtip tanks add approximately one foot to the normal 32 ft. 10 in. wingspan. Beech engineers estimate the tanks increase the wing's effective aspect ratio more than 10 percent im-

proving rate of climb and takeoff, because of the endplate effect. Tip tanks presumably will not be dropped since they are equipped with special emergency dump valves. In addition to standard engine-driven and hand-operated fuel pumps, plane also carries an electric pump with fuel lines arranged to transfer fuel from either or both wing tanks to cabin tank as desired. Plane carries more than a half-ton overload above the normal gross weight of 2650 lb. and grosses at 3750 lb., most of the extra load being fuel. Despite the special equipment and fuel installations the plane's center of gravity remains within the standard limits for Bonanzas, the manufacturer said.

▶ **Radio Equipment**—Radio equipment includes ADF, VHF, and CW transmitters and receivers, and a special self-powered set for limited communication in event of power failure.

With gross takeoff load of 3750 lb. it is estimated the takeoff ground run will be about 3,000 ft. under zero wind condition. Rate of climb will be 400 ft./min. after takeoff, with flaps and gear up. Optimum altitude is estimated at 12,000 ft. and true air speed at 132 mph.

Odom is thoroughly familiar with the Bonanza, having logged over 65,000 miles in the past year in his personal Bonanza in the U. S. and Canada. The flight is being conducted under official NAA sanction, under Federation International Aeronautique regulations.

Safety Foundation Reports On Work

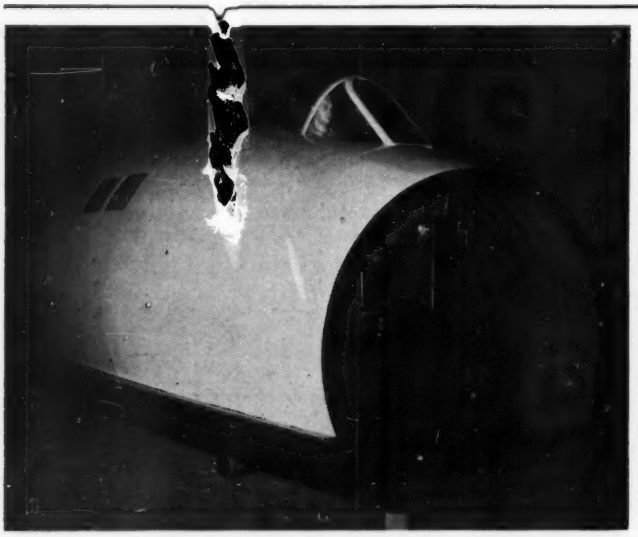
Flight Safety Foundation last week reported an impressive start on its ambitious 12-point program laid down barely six months ago (AVIATION WEEK, July 12). In a year-end report to the governing committee, FSF President Jerome Lederer cited ten contributions to aviation safety, most of which hewed close to the original goals.

Possibly of more significance, Lederer disclosed a list of 22 individuals and organizations, exclusive of government agencies, that have backed the Foundation's aims with funds. Because of the nature of its independent research work, the obtaining of financial support was expected to be one of FSF's toughest jobs. While a much stronger financial base is needed, the variety of the list is interesting.

Contractors with or contributors to the Foundation in the six-month period have been: Alexander & Alexander (insurance brokers), American Airlines, Beech Aircraft Corp., Boeing Aircraft Co., Braniff Airways, William A. M. Burden (former assistant Secretary of Commerce for Air), Capital Airlines, Colonial Airlines, Connecticut General Life Insurance Co., Continental Airlines, Delta Airlines, Sherman Fairchild, The Friendship Fund, Pauline Fenno, Grumman Aircraft Engineering Corp., Los Angeles Airways, National Aviation Corp., Edward J. Noble (former member of the Civil Aeronautics Board), Pan American Grace Airways, Laurence Rockefeller, Sportsmen Pilots Assn., United Air Lines.

Outstanding among FSF projects was the course to train aircraft accident investigators, a forum on company safety policies for aeronautical engineers and aircraft operators, research on sea survival and ditching procedures, and research on cockpit simplification—all part of the original 12 tasks the Foundation assigned itself. A beginning was made by the Foundation on other, long-range projects.

Not included in the original list of activities, but bulking large in FSF's present work, is the series of reports on size of flight crew complement, one of which has been completed for a group of airlines, the second of which is under preparation for Civil Aeronautics Administration and Civil Aeronautics Board.



Goodyear Cockpit Mockup Models

Goodyear Aircraft Corp. has completed four airplane cockpit mockup models for the Air Force designed to obtain the optimum efficiency, comfort and endurance for air crews of the future. The four models include a long-range, very heavy bomber (above), a tandem bomber, a cargo version and a fighter plane.

The VHB mockup features the location of the pilot on the centerline of the fuselage enclosed in a fighter-type canopy. The copilot is located below and behind the pilot with the flight engineer located adjacent. Each of the crew members is fitted with an ejection seat, which provided a major problem in the design. The cockpit of the bomber, powered by six turboprop engines, contains 54 power, flight and miscellaneous controls.

Pilot's controls are arranged for right hand operation with arm rests folding down and out of the way. The copilot's instrument board contains 10 flight and miscellaneous controls including those for propeller, wing and empennage deicing. Power controls are contained in the 11 engine and miscellaneous controls mounted on the flight engineer's panel. All control designs were provided by the Aircraft laboratory, Air Materiel Command.

The new cockpit mockups are designed to provide control, vision, functional arrangement, conservation of space, standardization of controls, emergency escape, safety of operation and efficiency of arrangement. They will be used as a standard guide for future construction and arrangement of future combat aircraft.

CAB, CAA Prepare Speed-up Measures

Civil Aeronautics Board and Civil Aeronautics Administration plan to ask the new Congress for legislation to speed up administrative action by authorizing delegation of duties.

A measure drawn by CAB would authorize the Board to allocate many of its activities to one or more Board members or high-ranking Board officials. The full Board would be required to participate in all major rate and route cases.

A CAA proposal would authorize the Administrator to delegate examination, inspection, and testing activities to private persons, setting maximum fees they would charge for the services. CAA's first step under the measure would be to turn over airworthiness certification to aircraft manufacturers. This has been recommended by the House Appropriations Committee as a speed-up and to cut down CAA operating expenses.

Two other measures CAB may propose would:

- Give the Board rate-fixing authority over foreign carriers, similar to that it now has over domestic operators. Pan American Airways has fought this proposal over the past several years.
- Authorize the Board to exempt carriers from filing contracts, agreements, modifications or cancellations, if and when consistent with public interest.

Unless stopped by the Budget Bureau, CAA plans to ask Congress for legislation to:

- Authorize construction of a new airport in the District of Columbia.
- Provide for ten $15,000-a-year professional and scientific posts in the Commerce Department for national defense research and development activities, including work on CAA's air navigation development program.
- Ease procurement regulations for the navigation facilities program. CAA would be authorized to bypass competitive bidding and enter negotiated contracts. It would also be permitted to use cost-plus-fixed-fee contracts, with a maximum fee of 15 percent of cost on research and development contracts and 10 percent of cost on production and installation contracts.

New Lights at Albany

Albany, N. Y., Municipal Airport is installing a high intensity lighting system on its instrument runway as part of a $1,500,000 improvement program which includes lengthening and widening the strip and construction of new runways. The new lighting system will include 60 elevated high-intensity lights for the 5000-ft. north-south runway.

MARTIN MAULERS GO TO SEA

First carrier tests of the Glenn L. Martin Co. Mauler (AM-1) Navy attack plane were made in the Atlantic on the carrier Kearsarge by VF-174 commanded by Lt. Cmdr. R. E. Farkas. The AM-1 is powered by a Pratt & Whitney R-4360-4 engine and has a range of more than 2000 miles and a maximum speed of better than 300 mph. Except for machine guns mounted in the wings all AM-1 armament is carried externally. It is equipped to carry rockets, bombs and torpedoes. Photo at top is a rare action shot taken at the moment the Mauler tail hook engages arresting gear.

Airport Program Grants Reach $61,808,641

The Federal Aid Airport Program moved ahead during the month ended Nov. 15 with 39 more grant offers totaling $3,804,532 for construction or development work.

Since May, 1947, when the airport program got under way, allotments have totaled 590 with a value of $61,808,641. Most recent 39 grant offers include nine for construction or development of small Class I airports eight for Class II, twelve for Class III and ten for Class IV or larger fields. Of the 590 grants to date, 164 have been for Class I airports, 127 for Class II, 166 for Class III and 133 for Class IV or larger.

▶ **New Chicago Allotment**—Largest grant during the month ended Nov. 15 was $1,775,000 for the Chicago Orchard (Douglas) Airport. Work will consist of partial development of the central terminal area. A previous federal grant of $2,600,000 was made for the field. The city of Chicago, sponsor of the project, has allocated $9,375,000 for its share of the work.

Latest tabulation on the overall progress of the federal aid program shows 132 projects 100 percent completed (against 107 the previous month); 167 projects between 67 and 99 percent completed; 54 projects between 34 and 66 percent completed, and 68 between 1 and 33 percent completed.

Besides the Chicago allotment, grant offers over $100,000 made under the Federal Aid Airport Program between Oct. 15 and Nov. 15: Owensboro-Davies Airport, Owensboro, Ky., (Class III) $434,000; Worcester, Mass., Municipal Airport (Class IV) $415,000; Baltimore, Md., Friendship Airport, (Class V) $182,451; Chess-Lamberton Airport, Franklin, Pa., (Class III) $130,700; Newark, N. J., Airport (Class III) $125,000, and Roswell, N. Mex., Municipal Airport (Class IV) $105,247.

British Airways

Agreement under which the British government will set up four additional four-course radio ranges of the type commonly used in the U. S. making possible a more complete airway control system than the United Kingdom has had heretofore, was announced by CAA Administrator Del Rentzel, following his return from a London conference.

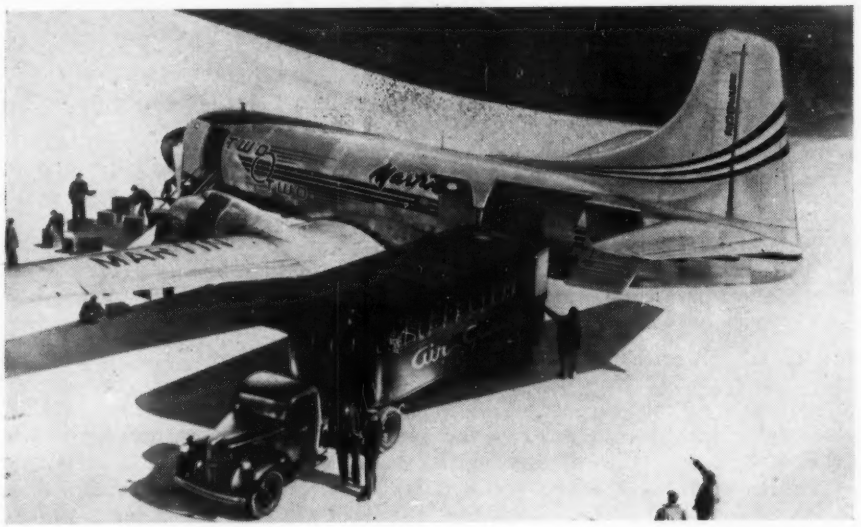
Rentzel said that the United Kingdom airway system was expected to be ready for operation in six months or less, and that although it was tailored primarily to meet British aviation needs, it would also be of considerable aid to American air carriers. The ranges will be low frequency type equipped with VHF markers.

One of the new ranges will be north of London with one of the range legs arranged so that American carriers will be able to cross Great Britain to the continent, on a definite route, thus reducing hazards of interference with local air traffic.

Rentzel said the agreement between British military and civil aviation authorities and the U. S. was worked out as a result of previous ICAO conference sessions on the subject. The British and U. S. also formed a basic agreement on a mutual program for newer air navigation aids at a later date, he reported.

The CAA head offered his agency's assistance to the British in procurement of the equipment needed, and training personnel for operation, if needed.

PRODUCTION



Commercial Cargo 2-0-2 Planned

Glenn L. Martin Co. is now offering a commercial cargo version of its Model 2-0-2 transport plane.

The cargo version of the 2-0-2 is the latest addition to a growing stable of commercial transports that soon will be available if any substantial market develops.

Martin has boosted the gross weight on the cargo version to 43,000 lb. compared with 39,500 for the passenger model. Design useful load is 18,799 lb. for the cargo version compared with 14,814 lb. for the passenger plane. Payload of 15,106 lb. for the cargo model compares with 9433 lb. for the airliner.

Modifications for the cargo version include a beefed up floor, tie-down equipment, large cargo doors fore and after and provision for ventilation and special refrigeration systems.

Fuel capacity has been increased from 1000 to 1550 gallons. Maximum payload of 15,106 lb. can be carried 680 miles nonstop. The cargo plane is designed to cruise at 281 mph. at 12,000 ft. and has a service ceiling of 29,800 ft.

It is powered by the same type Pratt & Whitney R-2800 engines and three-bladed, square tipped Hamilton Standard propellers used on the airline passenger model.

Italian Government Aids Aviation Industry

(McGraw-Hill World News)

ROME—Italy's aviation industry, knocked out in the war, is being partially revived through efforts of the Italian government.

The Aeronautic Defense Ministry has put in orders for aircraft and engines—mainly for civilian use—to be paid over a period of four years. Orders total the equivalent of $36,000,000 (based on the official rate of exchange).

Production will be distributed over four years with heaviest orders occurring in 1950-51. Breakdown for each year is:

1948-49—Two four-engine and two twin-engine medium-range transports. Two light twin-engine planes for use in schools; models of a helicopter and jet-propelled aircraft—also for use in schools; and ten turbojet engines to be built under license.

1949-50—Three four-engine craft; ten helicopters; three hydroplanes for relief work; and 20 turbojet engines (under license).

1950-51—Ten helicopters; 22 planes for various uses; 30 high-powered engines (license); and 20 turbojet engines (license).

1951-52—Ten helicopters and ten hydroplanes.

An important factor helping Italy's aviation industry get back on its feet has been its export trade with Argentina and Egypt. Since 1947 it has received orders for around 120 planes from Argentina and about 50 from Egypt.

Argentina has ordered forty-five G.55 Fiats for training, seventy G.46 Fiats for schools, and three B.Z. 308 four-engine passenger planes. Egypt wants twenty-four M.C. 205s (Macchi-Castoldis), nineteen G.55 Fiats, two three engine G.212 Fiats, and two four-engine S.M. 95s (S.I.A.I. Marcheettis).

Negotiations are also going forward for technical collaboration between Italy's aviation industry and those of France, Argentina, Egypt, India and Turkey.

Personal Aircraft Drop

A marked drop in personal aircraft shipments occurred in November when only 290 planes valued at $1,320,000 were shipped.

Planes delivered were 188 four-place and 102 two-place craft, Personal Aircraft Council of Aircraft Industries Assn. reported.

This compares with October shipments totaling 465 planes valued at $2,097,000 of which 311 were four-placers.

Total for first eleven months was 6752 civilian personal-type planes valued at $26,853,000 (military liaison planes not included).

Shipments in November by companies:

- **Aeronca**—Sedan, 19; Super Chief (85 hp.) 3; Champion (65 hp.) 1; Champion (85 hp.) 4; Model 7 CCM, 1.
- **Beech**—Bonanza, 37.
- **Cessna**—Model 120, 1; Model 140, 8; Model 170, 51; Model 190, 3; Model 195, 14.
- **Engineering & Research Corp.**—Ercoupe Model E, 5.
- **Luscombe**—Model 8 A (65 hp.) 27; Model 8 F (90 hp.) 16; Silvaire Sedan, 5.
- **Piper**—Cub Special, 14; Vagabond, 7; Family Cruiser, 15.
- **Ryan**—Navion, 16.
- **Stinson**—Voyager, 28.
- **Taylorcraft**—Taylorcraft, 8.
- **Texas Engineering & Mfg. Co.**—Swift 125, 7.

PRODUCTION BRIEFING

Hamilton Standard Propeller division of United Aircraft Corp. reports the Navy will use new Hamilton Standard propellers on the latest series Martin AM-1 attack bombers. Propellers are 14½ ft. versions of Hydromatics now in production for commercial and military transport craft.

Minneapolis-Honeywell Regulator Co. has signed a $1 million Air Force contract to manufacture new electronic controllers for reactivated B-29s. Controllers will modernize turbo-supercharger control systems installed in the bombers.

McDonnell Aircraft Co., St. Louis, Mo., has been presented the National Safety Council award for aircraft plants for the second year in succession. Second place went to the Stinson division of Consolidated Vultee Aircraft Corp.

San Diego division of Consolidated Vultee took third place.

Jack & Heintz Precision Industries Inc., Cleveland, Ohio, will sell its Berea Road plant to the White Sewing Machine Corp. Since the new owner will not take immediate possession, production by Jack & Heintz will continue at this location for the present.

The Charles E. Chapin Co., East Rutherford, N. J., manufacturers of jet aircraft and engine components, have appointed Foley and Co., New York City, eastern representative.

Piper Aircraft Corp. has taken formal possession of the Stinson division at Wayne, Mich., which it recently acquired from Consolidated Vultee Aircraft Corp. Stinson parts and service operations will remain temporarily at Wayne, but manufacturing is being moved to the Piper plant at Lock Haven, Pa.

Curtiss-Wright Corp.'s Airplane division at Columbus, Ohio, has loaned Boeing Airplane Co., Seattle, 45 engineers, with another 30 to 40 expected to be included under the arrangement.

Boeing Proposes Plan For Coordination

Boeing Airplane Co., producing for the Air Force a cargo plane (C-97) that the company believes is suitable almost "as is" for commercial cargo operations, long has complained over the lack of coordination between military and civil agencies of the government in approving new aircraft.

The Stratofreighter, proven out in more than a year of operation by the Air Transport Command and Military Air Transport Service, would have to be certificated by the Civil Aeronautics Administration before it could be used commercially. Meanwhile, continuity of production would be broken, with consequent loss of time and increased manufacturing costs.

With that situation in mind, Boeing has proposed to CAA and the Air Materiel Command a plan for joint approval and coordinated design requirements, Wellwood Beall, Boeing vice president, engineering and sales, discloses in the company magazine.

► **Boeing's Side**—Although Beall does not give details of the proposed plan, he has made a strong case for Boeing's side of the argument.

He points out that because of lack of coordination between military and civil agencies, prices of transports have been pushed up so high that commercial carriers can't afford to buy them.

Adoption of Boeing's plan, according to Beall, would bring down prices sufficiently for airlines and would stimulate development of the cargo-type plane.

► **Not Certificable**—The fact that USAF considers the C-97A suitable to carry 89 severely wounded litter cases but the plane cannot be commercially certificated to carry healthy persons for hire or even cargo was characterized by Beall as something that did not "make good sense."

For another example, he points out that CAA cannot approve the YC-97B (Air Force version of the Stratocruiser) for passenger-carrying work—yet the Air Force will probably "carry some of the nation's or even the world's most important people" in this plane.

Beall expressed doubt that "there will be any large transports, passenger or cargo, developed in the future" unless the Boeing proposal or something like it is approved.

Airframe Weight Decline

Output of complete civil aircraft during October as measured by airframe weight declined 4 percent from the previous month (794,200 lb. as compared to 828,900 lb.), according to a report issued jointly by the Bureau of the Census and the Civil Aeronautics Administration, Department of Commerce.

October shipments of civil aircraft amounted to 502 planes valued at $8.4 million. This was a drop of 15 percent in number and 12 percent in value from the 590 planes with a value of $9.5 million shipped during September. Of the 502 civil aircraft shipped, 476 were personal type and 26 aircraft were transport type.

► **Dollar Decline**—The value of civil aircraft engines and parts shipped during October was $2.5 million, which represented a 42 percent decline from $4.3 million shipped during the previous month. In terms of number and horsepower, shipments of civil aircraft engines declined 48 percent in number and 59 percent in horsepower from September to October (221 engines with 64,800 horsepower in October as compared to 428 engines with 156,200 horsepower in September).

Employment in aircraft plants showed a 6 percent increase from September to October (160,852 in October as compared to 152,429 in September). Employment in aircraft engine plants increased by 3 percent (37,357 in October and 36,385 in September). These employment data cover both military and civil production in aircraft and aircraft engine plants. However, output statistics on military aircraft and engines were not available at time of publication.

► **Exports Down**—October exports of 122 aircraft with a value of $4.2 million decreased 4 percent in number and 12 percent in value from the 127 aircraft valued at $4.8 million exported in September. Exports of 236 aircraft engines valued at $1.2 million increased 5 percent in number and 50 percent in value from the 224 engines with a value of $0.8 million exported during the previous month.

WHO'S WHERE

► **Douglas Aircraft Co.**, Santa Monica, Calif., appointed James L. Mayer director of industrial relations, succeeding Fred C. Fischer who resigned last month. Mayer joined Douglas in 1942 to handle labor relations at the wartime Chicago plant.

► **United Helicopters, Inc.**, Palo Alto, Calif., appointed G. E. Rice sales manager. Until recently he was regional sales manager for the Stinson division of Consolidated Vultee.

► **Jack & Heintz Precision Industries, Inc.**, Cleveland, Ohio, named Frank R. Kohnstamm senior vice president. He has been vice president. Otto Theodore Hess, general counsel and secretary, assumes the additional post of assistant to the president.

► **Weber Aircraft division** of Weber Showcase & Fixture Co., Huntington Park, Calif., promoted Charles H. Knapp, Jr., to sales engineer. He was in charge of the design and engineering department. John F. Turner, senior design engineer, moves up to superintendent of engineering.

► **Topflight Tool Co.**, York, Pa., appointed William H. Wagner aircraft tool engineer. He formerly was with Fairchild's Airplane division at Hagerstown, Md.

► **Lear Inc.'s** Romec Pump Co. division, Elyria, Ohio, named Andrew F. Haiduck general manager and chief engineer. He has been assistant manager and director of the experimental division of the pilotless plane division of Fairchild Engine & Airplane Co.

► **Wm. R. Whittaker Co.**, Los Angeles, Calif., appointed Tom O. Loughan field service engineer. He had been a technical representative and research engineer for North American Aviation.

► **Air Market Associates**, Dallas, Texas, manufacturers of a light weight radio receiver headset, named Clinton R. Harrower public relations and sales promotion counsel to handle general representation in the New York area.

DETROIT PUBLIC LIBRARY

New Chase Avitruc Stresses High Utility

YC-122 is company's first venture in powered plane manufacturing field. Craft can be converted to glider.

The twin engine YC-122, newest all-metal transport is slated for Wright Field flight tests as soon as it logs 30 hr. in the air. The craft flew for the first time on Nov. 18 (AVIATION WEEK, Nov. 29).

For use by both the Army and Air Force, it was built by Chase Aircraft Inc., Trenton, N. J. Except for engines, this high wing plane has the appearance and basic structure of the CG-18A Avitruc glider, another Chase product.

A noteworthy characteristic of the 122 is that it can easily be converted into a glider–probably the only transport in existence specifically designed with this feature.

Not an airplane to catch the eye, its fuselage–a reminder of the old-time "box frame" design–is a squared-off, truss-type, welded steel structure covered with aluminum alloy.

The 122 is intended for operations on rough ground and with heavy loads, where takeoffs and landings may have to be short.

Primary tactical use would be for transporting combat and engineering equipment for airborne assault troops. It can also be used to carry paratroopers to their jump destination and to evacuate wounded from forward combat areas.

► **Rugged Design**–Although the company is hopeful of getting a larger YC-122 contract from the USAF, only two have been ordered to date.

Essentially a short range, high performance craft, it can carry a useful load of 12,000 lb. for 1000 mi. at 200 mph.

It's estimated that with a maximum gross load of 29,000 lb., it can land over a 50-ft. obstacle and come to a standstill within 622 ft.

Exceptional strength of the plane stems from the truss type, X-4130 welded-steel-tube fuselage framework, extending from nose to tail. The structure can withstand very rough treatment and greatly increases the chances of a crew walking away from a crash landing.

It also permits strong tie-down provisions and affords a simple and economical method of fabrication.

► **Tie-Down Is Key**–The frame is specially strong around the nose to protect the pilot. Also, the cargo floor is strengthened by transverse beams and longitudinal reinforcing webs to which the tie-down fittings are secured.

Chase engineers point out that the 122 was virtually built around the tie-down requirements. Fittings have a limit load of 3000 lb. acting through an angular range from vertical to 30 deg. in any direction.

And some of these tie-downs are capable of withstanding a 10,000-lb. ultimate load acting parallel to the longitudinal axis of the plane. This would help prevent a forward shift of cargo in a crash landing.

► **Fuselage Details**–Fuselage skin is secured to aluminum alloy stringers which run longitudinally and are riveted to steel clips welded to the frame.

Fuselage interior is uncomplicated. A raised flight deck is located forward, separated from the aft section by a tubular steel bulkhead.

A full complement of troop carrier radio equipment is located just aft of this bulkhead–balance of fuselage is cargo space.

Advantage of the raised flight deck and steel bulkhead behind it is that they serve to prevent the crew from being crushed if the cargo should break loose and catapult forward in a crash.

Flight deck doors are located on both sides and an emergency exit is located above the pilot.

Windshields afford good visibility above, forward, to the side, and down for approximately 45 deg.

Cockpit arrangement–controls and instrumentation–is, according to Chase engineers, "the first to approach full compliance with the military's cargo airplane standardization program."

► **Cargo Facilities**–The cargo compartment is ideal for loading because its unobstructed, square interior gives utilization of all available space.

Also, the tubular steel framework is well-suited to withstand the impact and abrasion during loading when cargo is apt to be banged against the sides.

Cargo space is 27 ft. long, almost 8 ft. wide and 6½ ft. high.

Cargo floor is capable of supporting a uniformly distributed load of 200 lb. per sq. ft. There are two treadways which will withstand a wheel-load of 3000 lb. at any point along their entire length.

Ten individual, removable seats are provided on each side. If required, an-

The Birdmen's Perch

By *Major Al Williams,* ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

We can tell you a little more about our new Gulfhawk, now.

We've gotten a little more time in her, and honest—that F8 is an airplane!

Matter of fact, she's so easy to fly and handle that we sometimes feel that if we got out, she'd just go tooting along by herself until she got wherever she was going. At which point, she'd undoubtedly shoot a landing all by herself.

Fast, too. Fastest prop-driven plane in the world.

A while back we gave her a chance to get off in a hurry. We tied two JATO's under her belly and squared off into about a 5- or 6-mile wind.

We whacked the throttle and fired the jet-bottles—and, mister, we got upstairs quick!

Took us 2.4 seconds to get off! (Yep, that decimal belongs there.)

More about the Gulfhawk IV later.

We Told You So!

We're getting more reports from you pilots on Gulfpride—Series D—all the time.

You—and your maintenance men—seem to agree with us about this amazing

lubricant for horizontally opposed engines. Apparently, you've found that it frees sticking valves and rings and keeps them free longer.

You're discovering that you get more hours between overhauls and that majors are not only farther apart but are less expensive, too, because fewer replacements are necessary.

Because Gulfpride—Series D—is a fully detergent lubricant, you find carbon and foreign matter in suspension *in the oil,* instead of on cylinder walls, valves, etc. And when you drain your oil, out they go!

Well, we're glad you're discovering all these things about the only lubricant for light aircraft engines which is refined by Gulf's exclusive Alchlor Process—but we wish you wouldn't seem so astonished about them.

After all, we told you all these things way back in July when we announced the oil!

And when we talk about oil in the Perch you can believe everything you read.

Little Known Facts Dept.

Senior Perch Pilot Charles Miller—the world's *first* SPP—is back with us!

Having obtained his Senior Commission with 5 Little Known Facts, Miller seems to be shooting for the Command rating (20 Facts) . . . a position so exalted that we shudder just thinking about it!

One reason that Miller is our favorite Perch Pilot, in addition to being the highest ranking, is that he always sends in proof (PROOF!) with his Facts.

And that's more than some of you do!

Flutter's out right now mailing another Commission to Route 1, Box 143, Tracy, California, because:

"The Muroc Dry Lake race course, 1.863 miles long, is laid out to within .35 of an inch of absolute accuracy!"

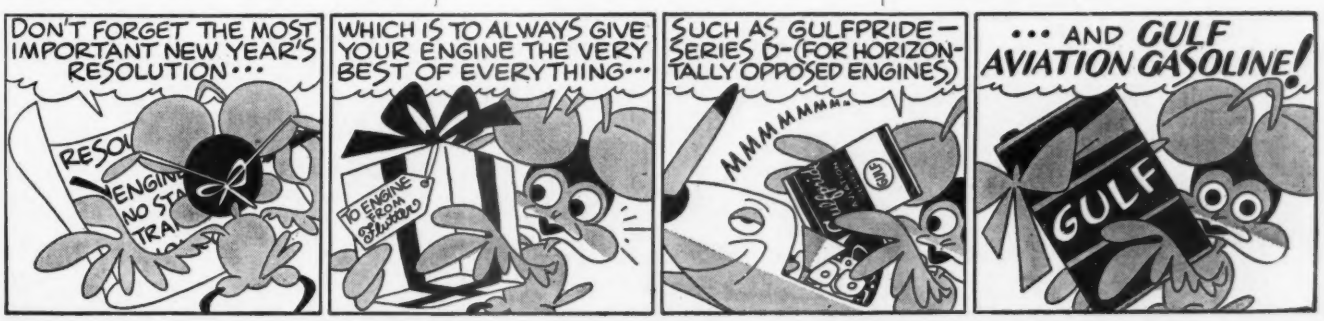
See how easy it is? Just write up a Fact, *prove it,* and send it to the address at the top of the page.

If we use it, you get a Commission as Perch Pilot (bottom rung) and a boost up the ladder of immortality.

Hurry!

Gulf Oil Corporation and Gulf Refining Company...makers of

GULF **GULF AVIATION PRODUCTS**


DON'T FORGET THE MOST IMPORTANT NEW YEAR'S RESOLUTION...
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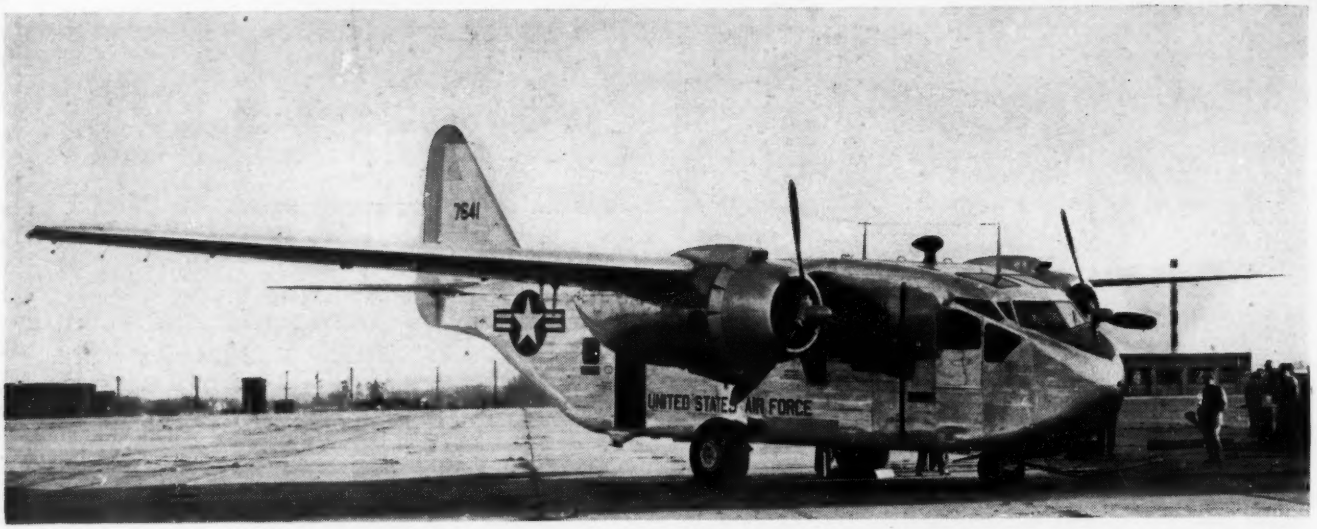


Removable nacelles permit craft to be converted to glider. Troop loading and flight compartment doors are located on both sides.

other ten seats can be installed along the center of the floor. With this arrangement, 30 fully equipped troopers can be accommodated conveniently.

Provisions have also been made to carry, alternately, 24 litters, and for increased range, auxiliary bladder-type fuel cells may be installed.

YC-122—SPECIFICATION DATA

Wing

Span	86 ft. 4 in.
Chord (at center of craft)	133 in.
Root chord	126 in.
Tip chord	68.85 in.
Gross area	706.5 sq. ft.
Total aileron area	46.72 sq. ft.
Total flap area	89.72 sq. ft.

Tail Areas

Stabilizer	86.34 sq. ft.
Elevator	54.26 sq. ft.
Fin	57.38 sq. ft.
Rudder	30.20 sq. ft.

Fuselage

Length	56 ft. 7 in.
Height to fin tip	21 ft. 4 in.
Cargo compartment	
Height	6 ft. 6 in.
Length	27 ft. 6 in.
Width	7 ft. 8 in.
Wheel tread	128 in.

Weights

Empty	17,000 lb.
Useful load	12,000 lb.
Maximum gross	29,000 lb.
Wing loading	40 lb./sq. in.
Maximum internal fuel load	520 gal.

Estimated Performance

Maximum speed—sea level	250 mph.
Cruising speed—sea level	200 mph.
Stalling speed	70 mph.
Rate of climb, sea level, with normal rated power	1300 ft./min.
Service ceiling at normal rated power	25,000 ft.
Service ceiling—one engine inoperative	8000 ft.
Range with maximum cargo at optimum cruising speed at sea level	1000 mi.
Takeoff over 50-ft. obstacle (no cargo and 50 percent fuel)	820 ft.
Landing over 50 ft. obstacle (design gross weight with deceleration devices	622 ft.

▶ **Loading Potential**—Strongest selling point is the close-to-the-ground, hydraulically operated, combination loading ramp and door at underside of aft-fuselage. The ramp section drops to the ground while the door folds up into the plane.

The ramp, which takes up the aft 54 in. of the compartment, can be set at any intermediate position and will support applied loads of 1000 lb. when off the ground or when closed.

An important feature in the 122 design is that a cable and hook from a 2½-ton truck can be run aft through the nose wheel well directly into the cargo compartment to pull cargo into the plane.

The cargo compartment is large enough to accommodate a 1½ ton Army truck (which may be driven in normally), or two jeeps, or one jeep and a 75-mm gun, or one 105-mm gun.

It will accommodate four jeeps if they are loaded in on dollies.

Two doors on each side permit personnel loading and are satisfactory for jumping.

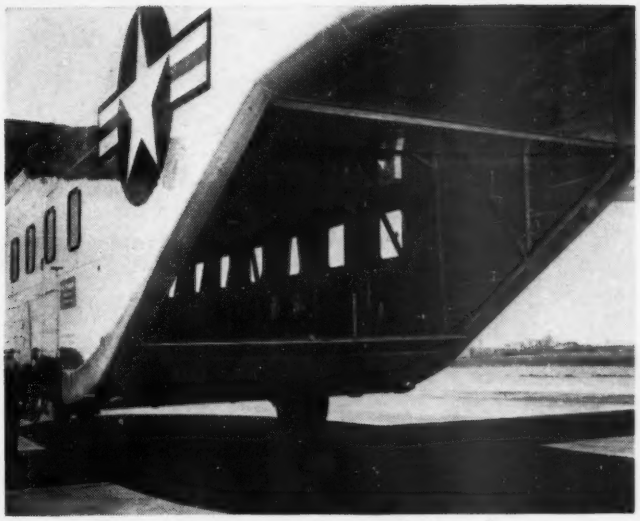
▶ **Undercarriage Design**—Main landing gear is fixed, making it especially suitable for rugged terrain. Tires are the 17.00x16 low-pressure type. Axles connect to shock absorbers which are secured to the fuselage frame.

The electrically operated nosegear is completely covered when retracted, folding up underneath flight deck floor.

Although not incorporated in the present model, Chase has plans to include provisions to permit the 122 to be fitted with pontoons, skis or tractor gear.

▶ **Wing Efficiency**—One reason for the reported excellent performance of the plane is its wing.

W. F. Sauers, Chase executive engineer says, "Wind tunnel and flight tests proved to us that it is superior to



Unobstructed, rectangular cargo space and high tail give Avitruc maximum loading potential. Bulky units need not be disassembled.

all known NACA or equivalent sections for the intended purpose. It indicates 30 percent higher efficiencies than the 2300 series to which it is similar."

Even though it must lift heavy loads in short takeoffs, the airfoil is somewhat thin and narrow, with a 10.55 aspect ratio. It has an almost straight leading edge and a swept-forward trailing edge.

The 86-ft. wing span embodies a center panel and two outer panels with detachable wing tips.

No fuel tanks or other major units are built into the wing sections. An I-beam front spar is located at 27 percent and a rear spar at 71 percent chord.

Ribs are the conventional riveted truss type construction.

▶ **Control Surfaces**—Oversized flaps, inboard and outboard, are single slotted type, mechanically interconnected by a cable system and operated by an electrical actuator. They can be extended up to 130 mph.

All-metal, slotted type ailerons are cable-operated and have electrically operated trim tabs.

Cables are routed from the control columns rearward to the front face of the front spar, then outboard to differential quadrants which connect to the ailerons by push-pull rods.

Tail surfaces consist of a metal covered stabilizer and fin and a fabric-covered elevator and rudder with electrically operated trim tabs. Both are cable-operated, with dual cables for the elevator.

▶ **Change to Glider**—If for no other reason, the 122 would rate high for versatility because of the quickly detachable nacelles which permit conversion of the craft into a glider. Only four bolts hold the structurally independent nacelle assembly to the wing—two attached to the front spar and two to the rear.

Nacelle frame is welded tubular steel construction with conical fittings to provide for engine mount attachment. With nacelle removed, there is a clean wing line.

Crew who took YC-122 on first 1000-mi. flight (l. to r.): G. Logan, mechanic; L. J. Stowe, project engineer; Maj. C. W. Brown, contracting officer; Michael Stroukoff, president; E. J. Clinton, test pilot; W. F. Sauers, executive engineer; and John Yukas, crew chief.

Each nacelle houses a 270-gal. metal fuel tank. A self-sealing tank of same capacity is being developed and will be installed later. A 25-gal. metal oil tank is located forward of the firewall in each nacelle.

▶ **Powerplants**—Engines are two Pratt & Whitney R-2000s rated at 1100 hp. each. Props are Curtiss Electric reversible type, three-bladed and 12 ft. in diameter.

Powerplant installation is similar to that on the C-54 transports, and a complete engine change forward of the firewall can be accomplished in a minimum of time.

Quick disconnects are provided at the firewall in all lines and mechanisms to facilitate this change.

▶ **Other Potential**—The 122 can be towed with nacelles on or off. As a towplane, it is believed that it will be able to snatch-tow a CG-18A—its glider counterpart—with both planes fully loaded.

Chase officials feel that this possibility, together with the obvious advantages of the loading facilities, removable nacelles, and expected general performance will make this plane ideal for use as an economical airline freighter.

Although the price of the plane is not definite, it is expected to be around $300,000.

To Chase Aircraft, the 122 is the first success in a long struggle to break into the powered transport manufacturing field.

The man primarily responsible for the development of the craft, is Chase president, Michael Stroukoff, who originally designed it.

▶ **Early Activity**—Stroukoff submitted a troop-transport design to the military at the beginning of the war, but this was turned down.

AAF first became seriously interested in his work when a wood wing he had

Whatever the Pl

Bendix Radio

PERFORMANCE

More Bendix Radio equipment has flown more miles on more planes than any other make. *Every major airline relies on Bendix Radio equipment.*

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whatever the basis on which you buy, Bendix Radio stands out. Th
are as plain as Bendix Radio leadership. Radio a
sidelines, but the sole preoccupation of this or
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Moreover, as one of the first, largest, a
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intimately acquainted with aviation's special problems, he
to anticipate the requirements of this highly sp
If you buy, sell, operate, manufacture or service planes
be sure to get the facts about job-designed

FLEXIBILITY

Buying from Bendix Radio allows you to choose for yourself, from a single reliable source, any type of installation, or any combination of equipment—because *Bendix Radio builds a complete line of aviation radios.*

ECONOMY

For the private flyer, Bendix Radio builds airline quality equipment at prices exactly proportioned to every job and every purse—from a small battery-operated receiver on up.

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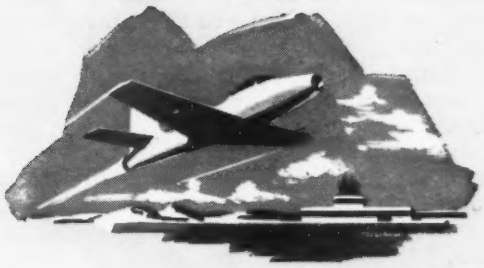
designed Bendix Radio equipment.



ADVANCED DESIGN

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submitted passed required static tests—at a time when most of them didn't meet requirements.

The airfoil was built in the shop of Chase Bros. Cabinet Makers, Inc. located in New York City. Frank Chase, one of the owners, continued to help Stroukoff until the end of the war.

Success of the wing prompted the AAF in 1943 to award Stroukoff a contract to build two CG-14 cargo and troop-carrying gliders of all-wood construction, one ship for static tests, the other for flight trials.

Though they only half-believed that he could handle the job, Stroukoff delivered both ships in less than twelve months—quite a feat, considering that his factory was a New York City garage.

Since then, his company has procured an unbroken chain of contracts.

▶**Factory Set Up**—He continued to build in the garage until the end of 1946. However, an AAF suggestion that he place himself in a position to handle larger contracts made him move the company to Trenton's Mercer Airport where he now has two large hangars for manufacturing, and a separate administration building, giving the company a total floor area of 250,000 sq. ft.

Until recently, all of Chase's contracts have been for experimental models. After the CG-14, they built two CG-14As of part wood and part metal construction. Then, in May, 1947, it was awarded a contract for an all-metal glider, the CG-18, capable of carrying 30 troopers. Service test production of five of these craft (CG-18A) is now in progress. This glider model is the forerunner of the powered YC-122.

Other experimental contracts held by Chase are for a CG-20 glider, capable of carrying 67 troopers, and one for a YC-123, its powered counterpart. Present backlog for all Chase contracts is around $11,000,000.

▶**Personnel Data**—Stroukoff is a White Russian who left his country in 1917, a graduate of Kiev University and the Military Academy for Cavalry.

He worked for several years in the Far East, building bridges and railroads for Britain, finally arriving in this country in 1924 where he practiced architecture until the beginning of World War II. He designed New York's Ziegfeld Theatre.

Other officials at Chase who were instrumental in development of the 122 are: J. F. Ryan, vice president and head of purchasing, who has been with Stroukoff from the start; W. F. Sauers, executive engineer and secretary of the company, formerly an Army major who was project engineer and test pilot at Wright Field; L. J. Stowe, YC-122 project engineer, formerly civilian chief, Glider Branch, Wright Field; and J. X. Cousins, comptroller and treasurer, former comptroller of Steinway Piano Co.

Jet Engines Accent Vapor Trails

Tactical advantage of high-altitude surprise may be nullified by intensity and extent of tell-tale paths.

By Robert McLarren

One of the startling developments in the early days of World War II in Europe was the unpredicted creation of condensation trails by high-altitude bombers and, to a lesser extent, fighters.

These long, white trails in the sky often compromised the tactical advantage of surprise on bombing missions and created a critical problem in planning and executing offensives.

Hurried research by the Royal Air Force in 1942 developed the theory that condensation trails could be avoided by flying very high, at least well above the tropopause (35,000 ft. under standard conditions).

Later experience proved this theory unsound, however, when intense trails continued to be created at altitudes above 40,000 ft. Subsequent research brought several methods of avoiding the formation of these revealing sky trails, but none can be considered reliable for mission planning purposes.

The increased use of the turbojet engine in fighters and particularly in bombers has aggravated the problem, and the Air Force recently revealed that on the record-breaking 9½-hr. endurance flight of the Northrop YB-49 eight-jet bomber, vapor trails 100 mi. long were created across the sky.

Assuredly this increase in intensity and extent of occurrence of condensation trails created by the use of turbojet engines constitutes an important tactical consideration for future operations.

▶**Engine Exhaust Factor**—Condensation trails are created by three separate phenoena, each of varying importance under different conditions. Most important source of vapor trails is the engine exhaust. The hydrogen of the fuel combines with the oxygen of the air to produce water—about 1¼ lb. for each pound of fuel. At high altitudes, where atmospheric temperature is extremely low, the air cannot hold much water as vapor. The water of the exhaust combined with the atmosphere's moisture may be too much for the atmosphere to handle as vapor. As a result, the humidity exceeds the saturation point, the water vapor condenses and a visible trail is formed.

The air behind a wing is a turbulent wake, which diffuses this water vapor and engine heat as a result of the mixing action of the turbulence. The turbulent wake grows and rotates out behind the airplane until the energy of the wake is dissipated as heat. This point may extend for several miles out behind the airplane, depending on its speed and power.

This turbulent wake is narrow near the airplane and the density of the moisture is therefore greatest immediately behind it. Farther aft, where the wake is larger and the exhaust moisture more diffused, the density of the latter becomes low.

In typical cases, therefore, the trail may extend only a short distance behind the plane, but if the moisture content of the wake at its point of initial formation exceeds 100 percent humidity, the trail will persist until it is blown away by atmospheric turbulence.

In the case of the YB-49, this trail persisted for more than 1½ hr. after the passage of the plane.

Formation of exhaust trails is obviously aided by high humidity, high fuel consumption (or high water production), and low airplane drag (which creates less turbulence and a narrow wake).

▶**Effect of Craft Itself**—Another type of trail is created by the airplane itself. As it passes through the air it transmits heat by radiation, the air behind the plane having a higher temperature than the air in front. This warm air rises behind the airplane, pushing up the colder air above it.

If the lapse rate of the cold air is less than the lapse rate of the warm air, a natural cloud will be created behind the airplane. This convection trail is very wide and does not appear until after passage of the craft.

Formation of this kind of trail is aided by high power, high fuel consumption, lapse rates on the verge of "instability" and high humidity.

▶**Aerodynamic Action**—A third type of trail is formed by the action of aerodynamics over the airplane surfaces, particularly the wing tips, propeller and empennage tips.

These trails are created by the action of the air in reducing its pressure as it accelerates over the airplane surface, resulting in adiabatic cooling of the atmosphere in the region.

This cooling action may prove great enough to raise the relative humidity of the air in the local area to more than 100 percent, resulting in moisture condensation.

Normally, this type of trail is dissipated quickly since the air returns to atmospheric pressure and temperature almost immediately and the condensate evaporates.

These aerodynamic trails are mere

Vapor trails of these World War II piston-engine bombers are only short streaks compared to 100-mi. lines left by YB-49 jet.

"wisps" only a few yards long, visible in a wartime picture of the Grumman F6F taking off from a carrier, and as the wingtip trails at air races and during high-speed flight maneuvers of military planes at very low altitude.

However, when the humidity is very high, evaporation can be slowed down to such a rate as to cause these trails to persist for considerable length of time. The formation of aerodynamic trails is aided by high speed, high wing loading, high humidity and high temperature.

► **Remedy**—Turbojet engines aggravate this problem because of their greatly increased consumption of air and fuel with a resulting increase in the production of water vapor. The relatively high temperature of the exhaust jet can also be a contributing factor. The higher speed of the jet plane also increases its heating effect on the atmosphere.

Only satisfactory solutions to the problem of condensation trails developed to date is for the pilot to move to another altitude or change to a different power setting.

Since both of these conditions are determined by the requirements of the mission and the aerodynamic characteristics of the airplane, it is very rarely the case that the undesirability of condensation trails will outweigh these factors. Military men have simply accepted them as strange, beautiful but unwanted, attributes of modern combat craft.

"Crude" Enemy Planes Warrant Close Study

In the three years since V-J Day, it has been customary to label wartime enemy aircraft as "inferior" in design, construction, workmanship, durability, serviceability and a variety of other characteristics. However, their performance was often equal to and, in many cases, superior to that of Allied aircraft.

Francis Arcier, well-known aeronautical engineer currently with Intelligence Department, Air Materiel Command, points out that this situation may hold a valuable lesson for the U. S. military and the aircraft industry.

An exhaustive analysis of captured enemy aircraft together with their combat records indicate that there is every reason to believe that war can be waged successfully with equipment designed at somewhat lowered cost and for relatively short operational life.

If the time should arrive when U. S. aircraft production must be suddenly increased because of an aggressive assault on the country, Arcier believes that the following conditions might be tolerated without a serious impairment in combat effectiveness of our aircraft:

- Relaxation of dimensional adherence requirements, where proper mechanical functioning, production jigging and tooling, mass production and sub-contracting permit.
- Increased use of adjustability features to permit adequate interchangeability, despite relaxation tolerances.
- Elimination of unessential machining or finishing cuts where stress concentrations are not involved.
- Use of riveting, or other permanent methods, instead of bolts for all attachments which do not essentially require disassembly.
- Elimination of all but essential plating and polishing.
- Use of most suitable or most available material for each part or component.
- Elimination of raw material cleaning, prior to fabrication, wherever the fabricating process will permit. (Metal in the "as received" condition is frequently quite corrosion-resistant.)

Arcier has proposed a plan under which some or all of these relaxations of standards could be tried experimentally.

In a current production contract, one airplane could be designated for incorporation of these rationalized standards. Upon completion, flight and static tests would determine the extent to which performance had been compromised.

In addition, costs and man-hour time would be available for comparison with standard production figures.

While the present state of aircraft design and production does not warrant such relaxations, a rigorous test of the procedures outlined would provide material invaluable in emergency.

New Mold For Plastics

Metallurgical research has given Westinghouse Electric Corp. an improved mold for plastics.

Nearly one third of all molds for the company's plastics are made by hubbing, in which a hardened master die is forced into a soft steel block to form a cavity.

Until recently, the metals used for the mold were soft, low-carbon, low-alloy steels. To withstand successfully the stresses of the compression molding of high strength thermosetting plastics, these molds were hardened by pack carburizing and liquid quenching.

This heat treatment often rendered a badly scaled, cracked, or distorted mold.

Company materials engineers have now developed an alloy steel sufficiently soft to permit easy hubbing, yet with properties that enable it to be gas carburized in an Ammogas furnace, using an atmosphere of hydrogen and methane, and hardened by simply cooling in a protective chamber.

The resultant product is clean and crack-free, virtually free from distortion.

"Give us the tools . . ."

What Are *YOUR* Chances If There Are No Profits?

Since the November 2 election there has been a dazzling variety of plans to have the government do more and more things and spend more and more money. But there is almost no variety in the plans which are suggested to raise the money.

"Pay for it by taxing profits," is the standard refrain. Slap on an "excess" profits tax. Boost the corporations' income tax rate.

Well – why not? Haven't the corporations been making so much money that a big chunk of it can be turned over to the government spenders without hurting anybody?

The answer is no!

How high profits should be can be debated endlessly. Some people claim that 1948 corporation profits, which will amount to about $20 billion, are too high. They emphasize the fact that profits are larger in relation to investment than they were a few years ago. Other people think profits are low. They stress the fact that profits are not much larger in relation to sales than they have been historically. Both sides agree that in some individual cases profits have been too high, as in others they have been too low or non-existent.

But if we cut the total volume of profits drastically, we shall do so at our national peril.

There is no room for debate about that. For we shall choke off the crucially important job of building new plants and equipment for our industries. Squeeze hard enough, and America will go the way of Britain – down the long and painful skids of industrial decline. Widespread unemployment, especially among our industrial workers who produce new plants and equipment, will mark the dreary way. Here is a fact which the President, the Congress, the C.I.O., and all of us have a real reason to remember:

Almost two-thirds of all profits today are going to rebuild and improve plants and equipment.

More than $13 billion of this year's profits are being plowed back. They are going – as a large proportion of profits have always gone – to buy for workers better tools to work with, better surroundings in which to work. They are making possible better products, and more of them, for all of us.

The figures below show how companies have put more and more profit-dollars and a larger share of their profits to work in the business:

YEAR	PROFITS REINVESTED	% OF TOTAL PROFITS
1929	$2.6 billion	31%
1939	1.2 "	24%
1943	5.9 "	57%
1944	5.2 "	53%
1945	4.2 "	47%
1946	6.9 "	55%
1947	11.2 "	62%
1948 est.	13.0 "	65%

The record shows that each of us is the real beneficiary of this plowing back of profits.

Every American has benefited from these profits. Each dollar that business has put into its plants and equipment in the last thirty years has increased our yearly production by 35 cents.

This re-investment of profits has helped make possible a 75% increase in living standards since 1919.

It has helped increase wages from an average 48 cents an hour in 1919 to $1.36 today. Allowing for higher prices, that increase means that an hour's work today will buy twice as much as it did thirty years ago.

Why must business retain these billions of profits to improve its plants and equipment? Why must it plow back more and more? *The reason is that business already is caught in a tax squeeze.*

Federal taxes alone take at least thirty-eight of each one hundred dollars a company earns. Then, if the company pays out to its stockholders any part of what is left as dividends, the federal personal income taxes of the stockholders may take up to 77% of those dividends. Under these conditions, so few people are willing to invest in industry that the stock market is stagnant. Companies can not raise in that market the money they need for improvements.

The result: business must rely more and more on plowed-back profits to pay for new plants and equipment.

We know that everywhere in industry new and better ways of producing goods are standing ready for use. The previous editorial in this series mentioned some of them. We know, too, that depression and war put our industries far behind schedule – as much as $100 billion behind – in getting the new tools they should have had to keep themselves in first-class shape. McGraw-Hill is now completing a survey of industry that will measure these needs. The results will be published in this editorial series. We know already that in 1949 alone industry will need $18 billion or more for this purpose.

And all but a small fraction of that sum must come from profits.

Our prosperity, our strength as a nation, our hopes for better living depend on our continuing to generate and to plow back a large volume of profits.

For that reason we should not thoughtlessly follow these people who propose to pay for any and all new government activities by saying simply, "Soak the corporations." There is no need to follow them. There are other ways of obtaining necessary funds.

First and foremost should be economy within the government itself. If its citizens must pay still higher taxes, then surely government should exercise rigid self-restraint, cutting out all but the most essential activities and expenses.

After economy should come consideration of a broader federal tax base.

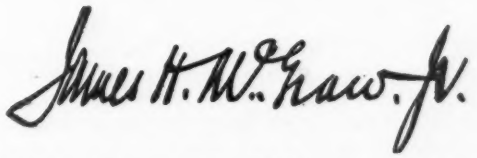
If these and other methods of raising money are inadequate and if taxes must take a bigger bite from business profits, two facts are clear. We should not adopt an "excess" profits tax with all of its complications and all of its corrupting effect on business. A moderate increase in the regular income tax on corporations is much less dangerous. *But even such an increase, if necessary, should be accompanied by special allowances for expansion and depreciation that will encourage companies to continue spending their earnings for new plant and equipment.* We all have a stake in that.

At this critical juncture in our history profits have a new and vastly more important role than they have ever had. In unprecedented degree they are the drive behind our present prosperity and the key to a better, stronger future.

Give profits the axe and the blow does not stop there.

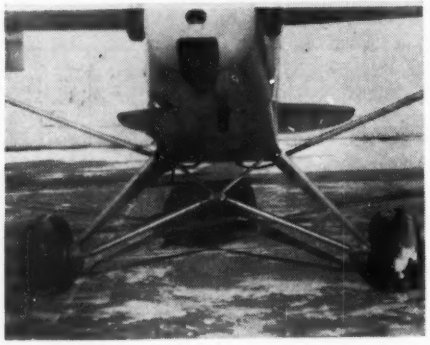
It cuts into the employment, the prosperity and the strength of our nation.

Everyone of us has a stake in how the President and Congress handle taxes on profits – and now is the time to remind them of that stake.



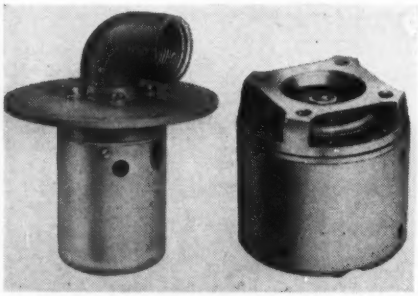
President, McGraw-Hill Publishing Company, Inc.

NEW AVIATION PRODUCTS



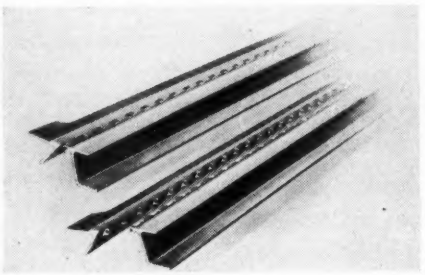
Landing Gear Strut

New shock strut, claimed virtually to eliminate bad bounces on landing and reduce the shock of impact transmitted to aircraft structures, is announced by **Air-N-Oil Shock Absorbing System,** Box 133, Vandalia, Ohio. Initial landing shocks are absorbed by ram which forces oil through small orifice into chamber of compressed air. Size of orifice and amount of air in strut is calculated to fit weight range of the specific aircraft. Taxiing shocks are absorbed by air chamber with knee-action effect. It's claimed that strut cannot "bottom." Device is described as completely self-contained and self-pumping, latter being accomplished while taxiing. Current approval by CAA is for Piper Cub J-3 and PA-11 aircraft.



Controls Fuel-Flow

Specifically designed for controlling flow in jet or reciprocating aircraft fuel transfer and single point fueling systems, float-actuated level-control valve is announced by **Parker Appliance Co.,** 17325 Euclid Ave., Cleveland 12, Ohio. Unit, operating in 1-50 psi. pressure range, by-passes small amount of line flow to pressure-balanced pilot valve, actuated by small float. When float closes against slight frictional resistance of lapped pilot piston, pressure builds up in pilot line to close main valve. Balanced pilot valve thus operates independently of pressure and flow rates, and so maintains uniform shut-off and reopening levels in tank over wide range of operating conditions. Device, winterized to −65 F., is built in two capacities: ¾-1 in. size (¾ lb.), and 1¼-2 in. size (1 lb.). Former has a 0.5-lb. pressure drop at 10 gpm. flow, 0.8 lb. at 20 gpm.; latter has 0.25 lb. drop at 30 gpm., 10 lb. approximately at 200 gpm. (specially suited to high flows as in single-point fueling).

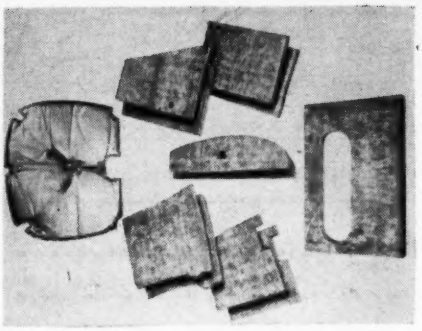


Structural Hinges

New type of continuous hinge or connector, combining structural factors with usual functions, is available from **Moynahan Bronze Co.,** 9062 Alpine, Detroit, Mich., in extruded units of 24ST and 75ST, in any shape, up to 12 ft. in length. Device is intended to simplify design, production and assembly by combining, as integral part, a structural airframe member and hinge.

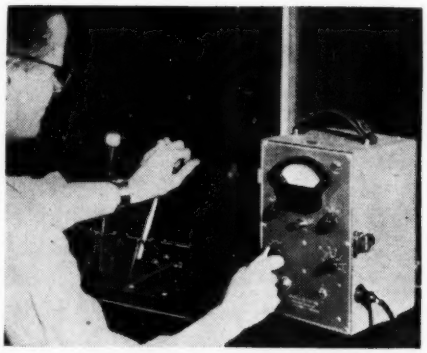
For Metal-Shearing Jobs

New Porto-Shear is offered by **Black & Decker Mfg. Co.,** Towson 4, Md., to expand greatly range of shearing capacity in variety of materials. It will cut 12-gage standard sheet steel while cutting approximately two gages thinner in Monel metal and stainless steel and approximately 50 percent above the rating in sheet copper, aluminum, lead and other non-ferrous metals. Device will follow irregular pattern because cutting blade is always visible and will cut on radius as small as 1½ in. Rapid reciprocating action of vertical blade against stationary horizontal blade makes clean smooth cut without burrs or ragged edges on either piece. Shear may be held in any position, over-top to rear-end. Handle contains instant-release trigger switch with locking pin for continuous use. Standard equipment includes set of blades; set-screw wrench; 3-wire cable and plug; trigger switch with locking pin; and motor which operates on either a.c. or d.c.



Pre-fabricated Insulation

Designed for effective reduction of cabin noise, Thermo-Cousti Fiberglas blanket insulation developed by H. I. Thompson Co., Los Angeles, Calif., is available in kits pre-fabricated to fit various makes of personal and executive type planes. Distributor is **Air Associates, Inc.,** Teterboro, N. J. It's claimed that blankets possess highest pound-for-pound acoustical efficiency, plus comparable thermal properties. Material is non-combustible, impervious to chemical reactions sustained in normal use, and unaffected by moisture. In addition to noise reduction characteristic, excessive heat and cold are kept outside, and cabin is sealed against entrance of driving rain.



Gas-Turbine Vibration Meter

Designed for use in laboratory, production line, and flight testing of turbojet engines, meter announced by **Special Products Div., General Electric Co.,** Schenectady 5, N. Y., measures vibration displacement, velocity, and acceleration. Instrument has vibration frequency range, without filters, from 30 to 300 cps. Special external filters, to eliminate unwanted frequencies, permit measurements in range of 14 to 20, or 120 to 130 cps. Selector switch provides choice of full-scale readings of 0.1 to 300 in. per sec. average vibration velocity, 1 to 3000 mils peak-to-peak vibration displacement, or 0.1 to 30 Gs acceleration. Equipment consists of from one to five vibration detectors, amplifier with indicating instrument, and, when desired, remote indicating instrument for panel mounting on aircraft when flight testing.

FINANCIAL

Bankers See Good Airline Future

Investment group devotes major attention to carriers in report and recommendations on aviation industry.

The aviation industry came in for special attention at the annual convention of the Investment Bankers Assn. of America held recently in Florida. An aviation securities committee presented a running review of the air transport and aircraft manufacturing groups together with a series of recommendations. Interestingly enough, the suggestions advanced were for the benefit of government policy-makers with none that can be implemented directly by investment bankers themselves.

There is virtually no new idea or approach in this report in respect to analysis or recommendations for the aviation groups. In reference to the aircraft industry, its authors admit: ". . . there is nothing sensational or highly original about these . . . recommendations . . ."

▶ **Significance**—The report is significant, however, as it reflects the thinking of investment bankers who will be called upon to underwrite the private financing that may be done in aviation. A strong undertone for private enterprise in aviation development and management is presented throughout, although it is to the government that pleas for aid in financial grants and liberal fiscal policies are directed.

The airlines receive the major attention in the bankers report.

The analysis of the air transport industry, for the most part, is taken from reports and papers previously issued by airline officials or economists.

▶ **Speech Recalled**—For example, in the opening section on nature and characteristics of the industry, liberal passages of word and thought appear similar to that expressed by Wayne McMillen, director of economic planning for American Airlines, in his speech before the Society of Automotive Engineers in Los Angeles last fall (AVIATION WEEK, Oct 18).

It is possible likewise, to identify the original sources of the bulk of the material appearing in the IBA report. Nevertheless, there is great significance in the fact that this banking group stands sponsor to the gleanings presented and also in the inclusion of some ideas and exclusion of others.

For instance, the report strongly opposes competition provided by the "non scheduled" freight and passenger lines.

▶ **Support Advocated**—Strong recommendation is advanced to the effect that the certificated airlines clearly are entitled to sufficient financial support (mail payments) from the government to permit them, if honestly, economically and efficiently managed, to earn adequate return on their invested capital, even though these mail payments may have to be so high as to contain a significant element of subsidy.

Further, the statement is made that mail payments in the past few years have been inadequate but there are reasons to believe they will be substantially increased in the near future. Opinion is advanced that if the industry is to show reasonable earnings over the near term future, airmail payments to our domestic carriers probably will have to be doubled and payments to our international carriers will have to be substantially increased.

▶ **Factors Cited**—The difficulties of the air transport industry are attributed to the following factors:

1. Overestimating the probable growth of traffic.
2. Hiring an excessive number of personnel and purchasing an excessive number of aircraft to cope with the expected increased traffic.
3. Insufficient control of costs during this expansion period.
4. Grounding of new types of aircraft for many months, resulting in heavy loss of revenue.
5. Major strikes, resulting in heavy losses for the affected airlines.
6. Excessive granting of new routes by the Civil Aeronautics Board.
7. Reduction of both mail and passenger rates on the erroneous assumption that traffic would greatly increase and costs decline.
8. Inability to reduce costs markedly in the face of the rising price level, despite introduction of more efficient aircraft.

▶ **Credit Reported Low**—Airline credit is reported at low ebb. If it continues at this level, it will be difficult if not impossible, according to the banking view, for the airlines to obtain the capital funds necessary to their sound future development.

A hopeful note is found, however, in the statement that: "there are signs that the industry has turned the corner economically and that its earnings outlook over the next two or three years is relatively promising.

In support of this view, the report assigns four principal reasons.

a) Government support required by the Civil Aeronautics Act is likely to be furnished.

b) Probability that the present excessive competition will be reduced by merger or otherwise over the next five years.

c) Increase in fares and reduction in costs.

d) Probable medium term growth in traffic.

▶ **Mail Payments**—Some interesting conjectures are advanced in projecting mail payments. The assertion is made that on the average, CAB usually has allowed 70 percent of airline assets in estimating return on invested capital. Actually, however, the Board has evaluated each case on its merits and has made individual allocations as to allowable assets to be included in the rate base. It may be misleading to assume that because the recent average has been 70 percent of the investment the same percentage will apply in future determinations.

The conclusion is advanced that while most estimates of 1949 traffic do not assume any very great increase there are several factors which make for substantial growth over the past five years. These include increase in total volume of travel due to rearmament boom, improvement of safety and regularity and gains in cargo business.

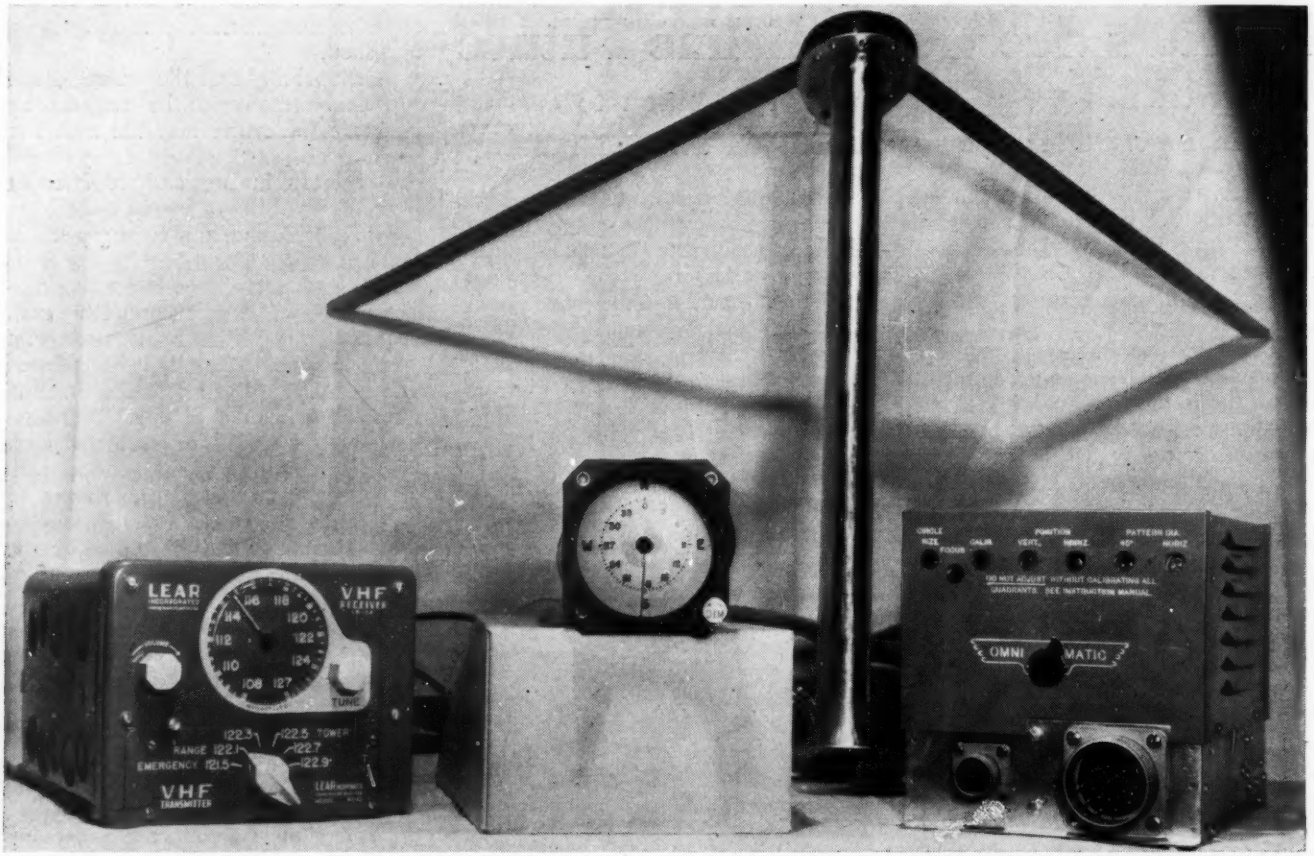
▶ **Cheerful Note**—A cheerful tone winds up the paper with the comment that airline securities are not normally thought of as "war stocks" but in the last war the airlines proved extremely profitable enterprises, thanks to their ability to run at very high load factors and, in addition, carry out profitable contracts for special services. There is every probability that the same situation would exist in a future war, subject, of course, to special taxation which presumably would be imposed on all industries.

On the whole, this report is the type investment bankers like to hear. Its effect upon influencing official government policy toward the industry, however, is highly questionable.

—Selig Altschul

Northeast Reduces Loss

While making a sharp reduction in the $1,380,832 loss recorded in 1947, Northeast Airlines still expects to report a deficit of about $500,000 for 1948. November bad weather and withdrawal of two of the company DC-3s for fire prevention modifications combined to pull operating results below the level for the same month of 1947, and contributed to the year's deficit.



Lear Packages Lightplane VHF

Device, in production, includes antenna, transmitter, receiver, power unit and tube in 24-lb. system.

Lear Inc., of Grand Rapids, Mich., is now in production on a new lightweight very high frequency communications and navigation set designed specially for use in lightplanes and small executive transports.

The equipment was developed by William P. Lear and weighs only 24 lb. installed in an aircraft. Price of the complete system including the omni-range receiver is around $700. The VHF transmitter and receiver purchased alone cost $400. These prices include installation costs.

▶**Lear Omnimatic**—The entire system is known by the trade name of Lear Omnimatic. It consists of a V-shaped VHF antenna; VHF receiver and transmitter; a power pack unit; and a cathode ray tube on which bearings from omni-range ground stations are indicated. The VHF receiver covers the full range from 108 to 127 megacycles. Transmitter is a six channel model that includes the emergency frequency of 121.5 megacycles; range frequencies of 122.1 and 122.3; and tower frequencies of 122.5, 122.7 and 122.9 megacycles.

The Lear equipment is probably the simplest to operate of any that has appeared on the lightplane market. It eliminates the "to-from" switch on most omni-receivers required to tell whether a bearing indicated is to or from the omni-range ground station. Nor is a cross-pointer cockpit indicator required to indicate right or left deviation from the omni-bearing selected as a course.

▶**Use Cathode Tube**—The Lear Omnimatic presents this information on a three inch cathode ray tube similar to those used in television etched on the face of the tube is a compass rose. When an omni-range ground station is tuned in a smaller green circle appears on the face of the tube with a pointed green "pip" indicating the bearing of the plane from the ground station.

As a safety measure no green circle or "pip" appears on the tube face unless the station is being received. If the station goes off the air or the equipment fails internally the "pip" disappears to prevent the pilot from acting on false information.

▶**Plan ILS Use**—The tube face is hooded to provide better visibility and has an intensity control. Lear has been successful in providing a cathode ray tube presentation that can be easily read in strong daylight and does not require extensive shielding or semi-darkness.

An additional feature is planned for the Scope presentation to allow its use with the localizer signals of an ILS system. When switched to the localizer frequency the "pip" will give the pilot his right or left deviation from the localizer path permitting him to make straight-in approaches under instrument conditions.

▶**Tube Controls**—Only three controls are required for the entire operation-tuning and volume controls on the VHF receiver and the dim control on the cathode ray tube. This simplification of controls was planned to give a pilot maximum time for other operations and

reduce time and effort required for communication and navigation to a minimum.

The Lear Omnimatic has been installed in a Beech Bonanza and given extensive flight tests during the past months. It fits easily into the Bonanza instrument panel. The VHF communications equipment takes up a six inch square of panel space with the cathode ray tube accounting for another three inch square of space.

▶**Fits Into Panel**—On most lightplanes the communications equipment will fit into the glove compartment and the scope into a normal round space provided for additional instruments. Provision is made for locating the communications equipment elsewhere in the airplane with remote cockpit controls. The power pack can be located in the baggage compartment or elsewhere in the plane subject to limitation of cable lengths. The V-shaped antenna is mounted on top of the fuselage.

Under normal operating conditions the bearings of the Lear Omnimatic are accurate to within one degree.

The Lear VHF receiver features a superhetrodyne circuit with three permeability-tuned coaxial tuning elements. Nine tubes are used in the receiver, two of which are power output tubes delivering an audio power of 3.5 watts to the loud speakers. These same two tubes also function as modulators in the joint receiver-transmitter circuits. The circuit change-over from receiver to transmitter is fully automatic and accomplished merely by pressing the "talk" button on the microphone. The Omnimatic equipment draws seven amperes at 14 volts and 3.5 amperes at 28 volts.

Park at the Airport

Airplane commuters to the newly opened downtown Chicago northerly island lakefront airstrip can park their planes there for four hours for a dollar, a fee comparable to that for parking their autos downtown for a similar period. Minimum landing fee at the airstrip is $1 and planes will be parked 8 hr. for $1.50 or 24 hr. for $2.

The lakefront strip, 10 minutes by bus and taxi from the loop district, has a single 2800 ft. runway, 150 ft. wide, a taxiway of the same length, 54 ft. wide, and parking space for 200 planes and 275 autos. Facilities include tiedowns, fueling, a control building and refreshments.

Pilots using the airstrip are cautioned to land and taxi only on the surfaced portion of the field. For north landing and takeoff a right hand pattern at 600 ft. is used, with a left hand pattern at the same altitude for south landings and takeoffs. Field is being operated on a daylight to dark basis.

BRIEFING FOR DEALERS & DISTRIBUTORS

CESSNA OUT IN FRONT—First place in the shrunken 1948 personal aircraft market was taken by Cessna Aircraft Corp., on a basis of the first 11 months figures which give the Wichita company such a commanding lead that its nearest numerical rival, Piper, stood little chance of making up the gap in December.

Cessna shipped 1562 planes or nearly a fourth of the total shipments reported by the 10 leading manufacturers, and showed a dollar volume of $6,361,000, nearly an even million more than its nearest competitor dollar wise, Beech. Cessna also led in the four-five place plane production, by turning out a total of 858 in this class, as against 801 Stinson Voyagers. The Voyager, now sold to Piper, appears to be for the second year, the biggest seller for a single model, since Cessna's multi-place plane total is divided among three models, the 170 with 684 sold, the 190 with 40, and the 195 with 134.

Total shipments of the 10 companies for 11 months was 6752 as compared to 14,985 for the same period in 1947 and 31,309 for the same period in the first postwar year, 1946. The 1948 picture from a dollar standpoint is better than from a production number aspect, since more than half the planes shipped were four-placers or bigger, and the unit price paid was well above that in 1947 and still higher than in 1946. As this was written it appeared likely that the December shipments would bring the total for 1948 up to almost exactly the 7000 mark for all 10 manufacturers. Total figure was less numerically than either Piper or Aeronca produced, alone, in 1946.

GEISSE ASSIGNMENT—John H. Geisse, one-time personal flying assistant to CAA Administrator T. P. Wright, is back at CAA under a new assignment from Del Rentzel, Wright's successor, as consultant to foster promotion of the crosswind landing gear to make possible construction of single-strip airports.

Geisse, who launched the CAA development project on crosswind gears, and continued as a consultant on the project after leaving his full-time job, will have a four-fold program: to work with manufacturers on further refinement of gears developed under the program, with aircraft manufacturers to get the crosswind gears installed as original equipment, with operators of private and commercial planes to bring about conversion of planes already in the field to crosswind gear, and with communities planning to build or improve airports.

SEVEN LEAGUE BOOTS—A Milwaukee newspaper cartoonist aptly depicts the two newly opened and improved lakefront airstrips, Maitland Field at Milwaukee, and the northerly island airstrip on the downtown Chicago lakefront, as making possible an air linkage of the two cities with a seven-league boots effect. Completed at a time when small plane flying in the Great Lakes region is at its annual low ebb, the two downtown lakefront strips will not have a chance to show their traffic potential until later in the spring.

STATE SUBSIDY—California Aviation Trades Assn. is seeking a state-subsidized flight instruction arrangement for high school students, under a proposal which would involve an appropriation of $60,000 a year. The state superintendent of public instruction would be empowered to use the fund for purchase of flight time from operators for the high school students. Allocations would be on a basis of 50 percent of the total cost of instruction purchased, with the student presumably paying the balance.

WINGTIP TANKS—Development of wingtip tanks for the Bonanza which Capt. Bill Odom is about to fly on his nonstop record attempt from Honolulu to (he hopes) New York, is something new in the lightplane field, but some aviation safety engineers have been doing thinking along these lines for several years.

The idea of having one's fuel supply out at the ends of the wings, away from the cabin of the airplane and its occupants, has a lot of attraction. Depending on how well the wingtip tanks are designed and attached, the drag factor can be diminished down to something negligible, and as on Odom's Bonanza, the end-plate effect of the tanks give some advantages in rate of climb and takeoff which could well offset any slight losses in straight and level cruising speed.

—ALEXANDER McSURELY

Air America, Inc.

(Traffic, Third Quarter 1948)

	Trips	Pass.	Capacity*	Load Factor
WESTBOUND				
July	12	555	600	92.5%
August	16	697	800	87.1%
Sept.	21	959	1050	91.3%
Total	49	2211	2450	90.2%
EASTBOUND				
July	15	662	750	88.3%
August	18	869	900	96.6%
Sept.	24	1172	1200	97.7%
Total	57	2703	2850	94.8%

**Capacity of aircraft (DC-4s) figured at 50 passengers.*

1948: Biggest Year For Nonskeds

Uncertificated carriers score high passenger, revenue totals, but fail to dent scheduled airline records.

By Charles Adams

Continuing their meteoric postwar growth, the nation's uncertificated airlines—both contract and nonscheduled—flew more passengers during 1948 than ever before.

Yet by every yardstick—traffic, revenue, assets, personnel and equipment—most independents were still shoestring operators compared to the scheduled carriers.

▶ **Transcontinental Traffic** — With studied disregard for the slump in domestic first class plane and rail travel, transcontinental irregular operators more than doubled their 1947 passenger volume. Nonskeds on the humming New York-Puerto Rico and Pacific Northwest-Alaska runs and worldwide contract operators also made impressive gains.

Doubtful legality of their operations kept many of the uncertificated carriers only a flight ahead of court injunctions and Civil Aeronautics Board crackdowns last year. Rigid enforcement of either the present nonscheduled exemption or the more stringent one proposed by CAB for promulgation in 1949 (Aviation Week, Dec. 20) could bring a sudden eclipse of nearly all irregular services conducted by carriers with transport type equipment.

▶ **Future Uncertain**—Even without severe CAB restrictions the future of many existing uncertificated carriers is gloomy. Success of coach-type operations has brought too many irregular lines into the competition for available second-class business, with vicious price-cutting practices resulting. And the certificated airlines have begun to offer skycoach services of their own.

Despite these uncertainties, four of the largest transcontinental carriers alone were doing business during the third quarter of 1948 at a rate of more than $6 million annually. The four California operators — Standard Air Lines, Inc., Long Beach; Viking Airliners, Burbank; Airline Transport Carriers, Inc., Burbank, and Air America, Inc., San Pedro—all operate coast to coast at 4 cents a passenger mile, charging $99.

▶ **Air America Grows**—Most amazing growth has been shown by Air America, headed by 33-year-old Fred A. Miller, former vice president of the Flying Tiger Line. Incorporated in April, 1948, the company began transcontinental operations July 8.

During July, Air America's DC-4s made 12 westbound and 15 eastbound flights with a total of 1217 passengers and a 90.1 percent overall load factor. In August, the carrier flew 16 westbound and 18 eastbound trips with 1566 passengers and a 92.1 percent load factor.

In September, Air America filled 2131 of its 2250 available seats on 21 westbound and 24 eastbound flights and had a record 94.7 percent load factor.

▶ **Carries 4914 Passengers**—Throughout the third quarter—its first three months of service—Air America flew 49 trips westbound and 57 trips eastbound, carrying 4914 passengers in the 5300 available seats and achieving a spectacular 92.7 percent load factor. During this period, the nonsked flew 12,310,279 passenger miles transcontinentally—slightly under the mileage flown by Colonial Airlines domestically in the same three months, but considerably more than the passenger business handled by Inland Air Lines.

By early December, Air America had flown over 10,000 persons coast to coast.

▶ **Good Earnings Reported**—Air America's first three months' operations yielded earnings of $35,073 on total revenues of $483,000, a profit in excess of 7 percent on the sales dollar. Figured on total investment, AA's earnings were huge.

As of Sept. 30 the company's total assets aggregated less than $132,000, including $76,602 in current assets, $5148 in flight equipment, $1609 worth of office furniture and fixtures, $22,623 in prepaid rentals and $25,925 in prepaid insurance.

Biggest operating expense during the third quarter was $184,666 for leasing planes and $102,372 in ticket agency commissions. Air America owns no transport equipment but rents two DC-4s on a long-term basis from California Eastern Airways and one from the Flying Tiger Line. On occasion, Air America has leased all four of California Eastern's DC-4s, plus equipment from the Flying Tigers.

▶ **Long Haul Cited**—Besides the impressive load factors, Air America's profits stemmed in large measure from its unbelievably long haul. During the third quarter, the company's average passenger haul was 2500 miles—far higher than that of any certificated domestic airline. By comparison, TWA's average domestic passenger haul in September was around 640 miles, United's 593 miles and American's 453 miles.

The four largest transcontinental irregular operators flew 37,772,268 passenger miles under the nonscheduled exemption during the third quarter of 1948, equal to only 10 percent of the 378,140,000 reported for the same period for American Airlines' domestic operations. The four independents' total personnel numbered only about 350 by Sept. 30—less than 3 percent of the 12,225 reported by American Airlines.

▶ **Other Nonskeds in Black**—Standard Air Lines, which flew 5057 passengers 10,071,389 revenue passenger miles in third quarter 1948 had only 87 employes on Sept. 15. Operating since 1946, SAL's transportation revenues totaled $948,360 in the first nine

months of 1948, and the carrier reported $77,028 operating profit for the period.

The company's 20,487,103 revenue passenger miles flown in the first nine months of 1948 compared with 16,446,522 in all of 1947. Standard has been using six DC-3s. Assets totaled $393,739 last Sept. 30.

▶**Viking Uses Eight Planes**—Using eight DC-3s, Viking Airliners flew 9,615,600 revenue passenger miles in third quarter 1948 and over 21,500,000 in the first nine months of the year, against 29,758,320 in all of 1947. The company started service in 1946 and by last September had 89 employes.

During the first three quarters of 1948, Viking had $751,268 gross income and $5273 net profit. Assets on Sept. 30 totaled $248,267.

Airline Transport Carriers, which used six DC-3s, flew 10,592,729 passenger miles on a nonscheduled basis and 2,249,699 under contract during the first nine months of 1948 compared to 6,382,500 in all 1947.

In the first half of 1948, ATC had $37,637 net profit on $262,236 gross transportation revenue. Assets Sept. 30 totaled $219,464.

▶**Safety Record Improves**—Barring a mishap during the last week of December, the transcontinental nonskeds can point to their second successive year without a fatal accident. This record is in sharp contrast to the 62 deaths in four fatal DC-3 crashes by coast-to-coast irregular operators in 1946.

The only fatal accidents involving large uncertificated carriers in 1948 (through Dec. 26) were the DC-3 crash of Airline Transport Carriers, Inc., near Coalinga, Calif., and the Coastal Air Lines DC-3 mishap near Savannah, Ga., both in January. The former was a West Coast charter trip for the U.S. Immigration Service, and the latter was a Newark-Miami flight with homeward-bound Puerto Ricans.

Besides the four major companies, a number of other $99 transcontinental carriers were operating during 1948, plus several $88 lines. On the New York-Puerto Rico run, more than a dozen irregular carriers were active during most of the year, carrying up to 40 percent of all airline traffic between the two points.

Between the Pacific Northwest and Alaska, nonscheduled and "charter" operators probably carried more passengers than Pan American Airways and Northwest Airlines, the two certificated companies on the route.

▶**International Carriers Expand**—The biggest uncertificated passenger carriers operated internationally last year. All flew under contract since nonscheduled trips to foreign points are prohibited by CAB.

Transocean Air Lines' $1,904,263 revenue during the third quarter of 1948 exceeded that of six certificated domestic operators in the same period—Colonial, Continental, Inland, Mid-Continent, National and Northeast. Large and profitable contracts with U.S. and foreign government agencies and the international refugee organization kept 11 TAL DC-4s and 836 employes busy in both the Atlantic and Pacific areas.

Other large uncertificated U.S. carriers flying passengers abroad include Alaska Airlines, Trans-Caribbean Air Cargo Lines and Pacific Overseas Airlines. All of these large carriers operate DC-4s.

Mail Pay Proposals Aid Capital, Colonial

Capital Airlines (PCA) and Colonial Airlines have entered 1949 with strengthened finances as a result of proposed mail pay increases aggregating $3,831,000.

Finding that Capital's financial condition was still critical, the Civil Aeronautics board late last month offered the company a lump sum mail payment of $8,997,000 for the period Jan. 14, 1947, to Dec. 31, 1948. This is equal to 28.7 cents a plane mile and is about $3,150,000 more than Capital received under the previous formula.

▶**Losses Not Eliminated**—The new temporary rate will not wipe out Capital's losses for 1947 and 1948, but will go a long way in that direction. And profits for the two years may result when CAB establishes permanent mail pay for the carrier.

During 1947, Capital had a net loss of $2,667,486 and needed about 31.4 cents a plane mile mail pay to break even. The company lost another $1,547,493 in the first 10 months of 1948 as passenger traffic dropped below 1947 levels and the cost of labor and materials rose. Last month PCA decided to withdraw its application for route extensions from Atlanta and Memphis to Los Angeles and San Francisco.

▶**Load Factors Drop**—President J. H. Carmichael sees no reason to expect an increase in Capital's business in the near future. In November, the company's systemwide passenger load factor fell to 46.88 percent despite the successful New York-Chicago Skycoach flights which have been running close to 70 percent full.

The proposed new rate will increase Capital's temporary mail pay during 1949 to about $3,050,000—equal to 18 cents a plane mile. Under the previous formula, the carrier would have received only 7.5 cents a plane mile. Early last month, Capital lost a court fight for $5,300,000 in retroactive mail pay covering the period from June 1, 1942, to Jan. 13, 1947 (AVIATION WEEK, Dec. 27).

▶**Boosts For 1946-1947**—Colonial, which earned a $124,415 operating profit on domestic services during the first 10 months of this year, has been offered mail pay increases dating back to early 1946. The proposed new temporary formula will reduce losses incurred during both 1946 and 1947 pending establishment of final rates.

For the period from Apr. 15 to Dec. 18, 1946, CAB has offered Colonial lump sum mail pay of $529,000, equal to 65.6 cents a plane mile for routes 71 and 71-F (Washington to Montreal) and 21.61 cents a plane mile for routes 72 and 72-F (New York to Montreal and Ottawa). The lump sum represents

COOL COMFORT IN MEXICO

LAMSA, United Air Lines' Mexican subsidiary, has completed tests with a DC-3 which show that painting the top half of the plane white reduces the cabin temperature about 15 percent when craft is on the ground during a normal stopover of 15 or 20 minutes. All LAMSA's fleet are being painted in this manner. In addition to the cooling effect, the white top makes a striking color combination. LAMSA says any type of white enamel paint can be used. The paint adds about 20 lb. to plane weight.

a $52,000 increase for the period.

Between Dec. 19, 1946, and Apr. 30, 1948, Colonial has been offered a lump sum mail payment of $1,470,000. This will produce about $629,000 more than the previous formula and is equal to about 36.9 cents a plane mile for the entire system.

Colonial's 35 cents a plane mile mail pay, which yields about $965,000 annually, will continue in effect for the period beginning May 1, 1948. The carrier told CAB last month its current rate is inadequate and that it should receive 50 cents a plane mile and that this mail pay should be retroactive to Apr. 15, 1946.

CAB Ends DC-6 Crash Investigation

Wrapping up its exhaustive investigation of two DC-6 accidents which took place during the fall of 1947, the Civil Aeronautics Board has asserted that lack of care by the Civil Aeronautics Administration, Douglas Aircraft Co. and the airlines concerned probably contributed to the aircraft mishaps.

CAA immediately challenged the new report. It said CAB failed to point up all the facts brought out in the hearings.

▶ **Modifications Eliminate Hazards**—The two accidents involved fires aboard a United Air Lines plane which crashed at Bryce Canyon, Utah, Oct. 24, 1947, and an American Airlines craft which made a successful emergency landing at Gallup, N. Mex., less than three weeks later. Modifications have since been made on the DC-6s to remove the fire hazard discovered in the Board's investigations.

As in its earlier reports, CAB said the probable immediate cause of the mishaps was combustion of gasoline which had entered the cabin heater combustion air intake scoop. In each mishap, the flight crews transferred fuel either intentionally or inadvertently from the No. 4 alternate tanks to the No. 3 alternate tanks and failed to stop the transfer process in time enough to avoid overflowing the No. 3 alternate tanks.

Gasoline flowed through the No. 3 alternate vent line, out the vent, and was carried back by the slip stream, entering the cabin heater combustion air intake scoop. In both accidents, the cabin heaters had been operating and ignited the gasoline entering the scoop. This caused the fuel to burn in the intake ducting and thereafter to penetrate into the air conditioning compartment.

▶ **Lack of Caution Seen**—CAB now states that CAA and Douglas "failed to exercise full caution in analyzing the DC-6 fuel system relative to proper location of fuel tank vents to provide a non-hazardous location for fuel drainage as required by existing regulations." The Board added that CAA, the manufacturer and the airlines involved also failed to pay sufficient attention to the procedures of fuel management employed by DC-6 pilots.

Both aircraft involved in the accidents were individually certificated in accordance with the type certificate issued for the DC-6 by the Civil Aeronautics Administrator. No powerplant, fuel, electrical or air-conditioning system failures contributed directly to the mishaps.

▶ **Tests Not Conducted**—CAB noted that the Civil Air Regulations under which the DC-6 was certificated specifically required that vents should be tested to determine whether any hazardous condition exists upon discharge of gasoline through such outlets. "Such tests were not conducted. This particularly hazardous condition was found to exist in this model aircraft notwithstanding the fact that the type inspection report required a determination to be made as to the location of the vent outlets."

The DC-6 type inspection report contains the question: "Do vents appear to terminate at points where the discharge of fuel from the vent outlet will not constitute a fire hazard?" A CAA agent responsible for this portion of type inspection on the DC-6 aircraft answered the question in the affirmative.

CAB also declared that fuel transfer procedures were not specifically authorized in either the CAA's approved aircraft operating manual or the manufacturer's DC-6 operation manual. "Despite this fact, the airlines were instructed by representatives of the manufacturer in the methods of fuel transfer, after which such practices were followed by their pilots. There is no indication that CAA investigated the propriety of these air carrier fuel transfer practices."

▶ **CAA Disclaims Responsibility**—In its reply, CAA declared that its manual for DC-6 operation set forth good safety practices for loading and use of fuel. Continued CAA officials: "The accident resulted because these practices were ignored."

Similar safe operating practices were contained in the DC-6 operation manual issued by Douglas on Dec. 1, 1946, and revised Sept. 15, 1947—prior to the accidents, CAA pointed out. Conceding that it did not issue a mandatory prohibition against transfer of fuel while in flight, CAA said such a step was not deemed necessary inasmuch as the operating manual set forth the proper procedure for feeding fuel from any tank to any engine.

Family Fare Plan Good Until Mar. 31

The domestic airlines have received CAB permission to keep their low-cost, first-of-the-week family fares in effect until Mar. 31.

A Board announcement said more data is required to determine whether the plan is desirable. American Airlines initially established family fares last Sept. 14. The tariff provides that if one member of a family pays full fare for a trip on Monday, Tuesday or Wednesday (usually light traffic periods) other members of the family may travel at half fare.

▶ **Plan Called Successful**—American Airlines officials have acclaimed the family fare plan as "an unqualified success." Through Dec. 27, more than 16,000 family groups and 34,000 individuals had been carried by AA under the special tariff.

Thirty percent of American's family plan passengers are flying for the first time. Average family group is 2.13 persons, although some run as high as eight persons.

▶ **Travel Pattern Changes**—The plan has changed the emphasis on air travel from the end of the week to the formerly slack first of the week period. In August, the heaviest traveled days for American were Friday, Sunday, Saturday and Thursday in that order. In October it was Friday, Monday, Wednesday and Tuesday, respectively, with Saturday the lowest point in the week.

Ten percent of all AA's passengers on the first three days of the week are riding under the special family rates. The average family plan passenger flies twice as far as the regular air traveler.

Besides American, carriers with family plans now in effect are Northeast, United, TWA, Northwest, Capital, Continental, Mid-Continent, Western, Braniff, Piedmont, Southwest, Empire and Pioneer.

Sightseeing Flights

About 5000 persons have taken half-hour rides over Los Angeles since three major airlines began Sunday sightseeing flights at Los Angeles Airport several months ago.

American Airlines, which instituted the idea, has made 55 flights carrying 2679 passengers in DC-6s. TWA has operated 27 Constellation flights with 1305 passengers, and Western has made 20 DC-4 and Convair-Liner hops carrying 865 passengers.

Approximately 90 percent of the people taking the $2.50 promotional rides are making their first airplane flight. And about 15 percent are sufficiently impressed to take a second sightseeing trip.

Produce Unaffected In Pressure Tests

The quality of airborne strawberries, grapes, tomatoes and 31 other varieties of fruits and vegetables is unharmed by normal flight conditions provided the temperature and humidity are controlled.

This conclusion was reached following a joint study by plant scientists of the U.S. Department of Agriculture and the engineers of Lockheed Aircraft Corp. Tests showed that tender avocados and peaches do not react badly to sudden air pressure changes, and lettuce and tomatoes do not burst during rapid climbs or descents if otherwise properly cared for.

▶ **Altitude Chamber Tests**—The experiments were conducted in Lockheed's altitude chamber at Burbank, Calif. Trays of farm-fresh produce were placed in the steel cylinder, the chamber doors were bolted, and the air was exhausted at a predetermined rate designed to simulate the climb of a transport plane to cruising altitude. Once leveled off, the inner pressure was held at this height for the normal period between stops, after which air was returned to the chamber at a rate simulating a normal descent.

Climbs were made at the rate of 3000 ft. per minute to 30,000 ft., with descents at the same rate. This process was repeated as many times as a cargoplane normally takes off and lands during a transcontinental flight. With the simulated flight completed, the produce was then held for several days in a control room at normal marketing conditions for comparison with other fruits and vegetables which were purchased at the same time and held under closely-controlled conditions of temperature and humidity.

▶ **Conditions Varied**—The series of experiments was repeated several times with various conditions applied to the produce. Close inspection of the airborne fruits and vegetables by Department of Agriculture experts failed to disclose any effect of the altitude changes. Quality of all merchandise remained the same as that of the control items.

Only once, during a special rapid ascent at a rate of 5000 ft. per minute to an extreme altitude of 50,000 ft., did ill effects show. In this case, one tomato and one persimmon out of about a dozen of each burst. No other items were affected.

▶ **Dry Flight Hurts Produce**—In an experiment in which a warm, dry flight was simulated, the produce which had not been precooled became dull and wilted after two hours in the test chamber. Loss in weight was high, ranging from 6 to 15 percent in asparagus, broccoli, green onions, red raspberries and strawberries. In a different test, fruit and vegetables remained fresh in appearance and lost very little weight when precooled to about 40 degrees Fahrenheit with humidity held at 55 to 75 percent.

Other fruits and vegetables tested: string beans, lima beans, beets, bell peppers, Brussels sprouts, carrots, cauliflower, celery, cucumbers, eggplants, figs, limes, mushrooms, mustard greens, parsley, peas, pears, radishes, Romaine lettuce, salad mix, spinach, sweet corn, squash and water cress.

Cost of the experiments was shared by Lockheed and the Department of Agriculture.

Crew Errors Cited In Accident Report

Flight crew errors contributed to the mid-Atlantic accident involving an American International Airways Boeing 314 flying boat and the crash of an Eagle Air Freight DC-3 near Eloy, Ariz., according to recently issued Civil Aeronautics Board reports.

Short of fuel, the flying boat was forced to come down at sea for three basic reasons: the maximum permissible gross weight was exceeded; no continued cruise control chart was prepared or maintained during the flight; and the crew failed to utilize available weather data with reference to speed and navigational fixes. The craft landed near the U.S. Coast Guard weather ship Bibb, which rescued the 62 passengers and seven-man crew.

▶ **5000-lb. Overload**—At the time of its takeoff from Foynes, Ireland, for Gander, Newfoundland, the plane was loaded approximately 5000 lb. in excess of its certificated gross weight of 84,000 lb., and the load was unevenly distributed. There was no malfunctioning of the aircraft, but because of the overload and headwinds the estimated air speeds for the flight could not be obtained without the use of uneconomical power settings.

The crew estimated that the 4000 gal. of fuel aboard would provide for 22 hr. of flight, leaving a 5-hr. fuel reserve on the 1730-mile trip to Gander. Actually, the power settings used permitted endurance of 17 hr. 30 min.

With headwinds growing stronger and Gander still 460 miles away, the crew decided it could not reach its destination with the fuel remaining. The plane was flown back 300 miles to the Bibb for the emergency landing.

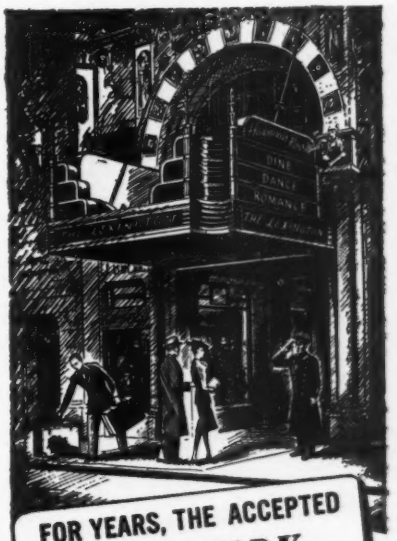
▶ **Navigator Asleep**—CAB said information concerning winds received after takeoff was not considered properly by the crew in estimating the total time of flight and point of no return. During a critical period of the flight, when there was still sufficient fuel to permit a return to Foynes, a radar fix was received from the Bibb, but the navigator apparently was asleep.

The Eagle Air Freight mishap, involving a cargo DC-3 bound from Burbank, Calif., to El Paso and Ft. Worth, was probably caused by fire in flight, resulting in the loss of the left engine and the subsequent crash landing. Cause of the fire was not determined, but contributing factors were the failure of the pilot to remain fully awake at all times and failure to follow—correct emergency procedures.

▶ **Maintenance Questioned**—CAB said the pilot fell asleep 15 minutes after takeoff from Burbank and remained asleep until the copilot discovered the fire.

Neither the captain nor copilot was familiar with engine fire emergency procedures and failed to follow them in attempting to control the fire.

Investigation revealed that at the time of the mishap mechanical work performed by the company was below a reasonable safety standard for air carrier operations. This condition was corrected after Eagle was reorganized, and no evidence was found showing a definite relationship between maintenance and the engine fire.



TWA Files to Start Skycoach Service

TWA is slated to become the fourth certificated U. S. airline to offer four-cents-a-mile "skycoach" services to its customers.

The transcontinental carrier announced late last month that it would file an experimental tariff with CAB providing for two coach flights daily between Kansas City and Los Angeles with a one-way fare of $59.50. The rate represents a reduction of $33.30, or 36 percent, from the regular six-cents-a-mile Kansas City-Los Angeles airline fare. Railroad Pullman rate between the two points is $77.30, and railroad coach fare is $38.60.

▶**DC-3s To Be Used**—All of TWA's skycoach flights will be in 24-passenger DC-3s. In place of regular meals, hostesses will serve hot coffee in flight, and box lunches will be available for purchase by passengers at regular food stops. TWA will continue to serve complimentary meals on its full-fare Constellation, Stratoliner and DC-3 flights.

Depending on CAB approval, TWA hopes to inaugurate its skycoach service on Jan. 12. Schedules call for departures in the late evening. Intermediate stops will be made at Wichita, Amarillo, Albuquerque and Phoenix.

▶**No Roundtrip Reduction**—Reservations will be made by the passenger only at the time he purchases his ticket. Roundtrip reductions and family group fares now in effect on TWA's regular flights will not apply to skycoach service.

Mid-Continent, Capital and United Air Lines protested that the 15 percent roundtrip reduction would provide unreasonably low fares which would yield revenues considerably below TWA's DC-3 operating costs.

British Airlines Deficits

Great Britain's government-owned airlines are continuing to show large deficits.

For the six months ended Sept. 30, British Overseas Airways Corp. lost $10,736,000, British European Airways $3,588,000 and British South American Airways $1,640,000. The $15,964,000 total deficit compares with an $18,760,000 loss in the same period in 1947.

During the year ended Mar. 31, 1948, the three carriers were about $44,500,000 in the red (AVIATION WEEK, Dec. 6). Total number of employes has been reduced from 31,553 last year to 29,949.

Meanwhile, BOAC has begun servicing Constellations at its new Filton, England, maintenance base. The line expects to save several million Canadian dollars annually through the recent transfer to Filton of its North American maintenance and overhaul base at Dorval, Canada.

what TWA likes about

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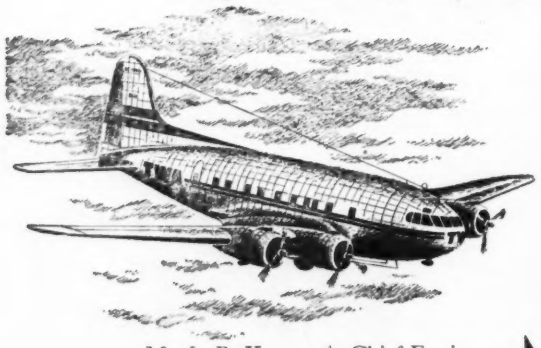

Mr. L. R. Koepnick, Chief Engineer, Trans World Airline

WE RECENTLY asked Trans World Airline what they considered important features of Edison Fire Detection. In their answer,* Mr. L. R. Koepnick, Chief Engineer, states that TWA's Edison-equipped DC-3's and Boeing Stratoliners have now flown millions of miles *without a single false engine fire warning.*

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* Copy of Mr. Koepnick's letter detailing TWA's reasons for selecting Edison Fire Detection will be gladly sent on request.

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SHORTLINES

▶**American** — Company's Ardmore, Okla., and New York City stewardess schools have been closed. Modern training facilities and living quarters will be built in AA's new $3 million hangar at Chicago Municipal airport in time for the next class on Feb. 1. Biggest of the new training aids is a reproduction of a DC-6 passenger cabin that can simulate actual operating conditions, including rough air. American trains about 300 new stewardesses yearly and loses 40 to 50 percent annually—mostly because of marriage.

▶**Braniff**—Has instituted 5 percent roundtrip discounts on all domestic flights.

▶**British European Airways** — Peter Masefield, director-general of long term planning at the British Ministry of Civil Aviation, will become assistant to Gerard d'Erlanger, BEA chairman, this month.

▶**British South American Airways**—October passenger business was up 50 percent over last year.

▶**Golden North Airways**—Flew 665,855 revenue passenger miles and 880,713 cargo ton miles in the three months ended Sept. 30 and reported $4554 profit for the period on total revenues of $55,832. The nonscheduled operator, based at Fairbanks, Alaska, and active on the Seattle route, had one C-46 and ten employes in September.

▶**Pacific Overseas**—Lost $56,886 during the first nine months of 1948 on $578,133 total operating revenue. For the third quarter alone, earnings were $17,703 on $242,463 operating revenues. The Ontario, Calif., contract carrier had one owned and two leased C-54s as of Sept. 30. Employes numbered 195.

▶**Pan American**—DC-4s on the New York-Buenos Aires run will be equipped with "Sleeperette" seats starting this month, and plane occupancy is being limited to 30 passengers instead of 52. No extra fare will be charged.

▶**Panagra**—Plans to cut its sleeper tariff to $45 effective Jan. 14 on the daily DC-6 "El Interamericano" flight between Miami and Buenos Aires.

▶**Riddle Aviation Co.**—Reports $3381 net profit on $118,823 operating revenue during the third quarter, when it flew 707,967 cargo ton miles with DC-3 equipment on the New York-Miami-Puerto Rico run. October operating profit was $2917. The uncertificated carrier, based at Coral Gables, Fla., had 33 employes, including 13 pilots and copilots, in September. As of June 30, 1948, the company had a $152,885 deficit.

▶**TWA**—A CAB investigation of the Thanksgiving Day fire which destroyed a Constellation after a hard landing at Los Angeles Airport brought testimony that dense patch fog obscured the pilot's vision at the moment of his landing flareout. Landing impact blew out a nose wheel tire and broke a No. 4 engine fuel line, causing the fire. Passengers sustained only minor injuries when leaving the plane through escape doors.

▶**United**—Revenue passenger miles in November were up 17 percent over the same month last year but 22 percent below October. Mail ton miles totaling 920,080 were up 53 percent from November, 1947, but off 1 percent from October; freight, totaling 1,934,670 ton miles, was up 58 percent from a year ago and 3 percent higher than October; while express ton miles totaling 597,310 gained over 6 percent compared to November, 1947, but dropped 14 percent under October, 1948. UAL's traffic during November, 1947, was reduced by the DC-6 groundings.

▶**Western**—Planned to inaugurate a daily Convair-Liner flight between Los Angeles and Las Vegas, Nev., on Jan. 1.

CAB SCHEDULE

Jan. 4—Hearing on TWA route consolidation case. (Docket 2581 et al.)

Jan. 10—Oral argument in Continental Air Lines route consolidation case. (Docket 576 et al.)

Jan. 10—Hearing in Florida Airways certificate renewal case. (Docket 3511.)

Jan. 10—Hearing on TWA's complaint against Seaboard & Western Airlines. (Docket 3346.)

Jan. 10—Hearing on TWA's complaint against Pan American Airways' Saudi Arabian service. (Docket 3264.)

Jan. 10—Hearing in New England states service case. (Docket 2196 et al.)

Jan. 12—Oral argument on Pan American Airways' Miami-San Juan-St. Thomas fares. (Docket 3274.)

Jan. 24—Hearing in Milwaukee-Chicago-New York service case. (Docket 1789 et al.)

Jan. 24—Hearing on Board's investigation of National Airlines route transfer. (Docket 3500.)

Jan. 25—Hearing on Western Air Lines-Arizona Airways San Diego-Yuma route transfer. (Docket 3440.)

Jan. 31—Hearing on additional service to Puerto Rico. (Docket 2123 et al.)

Feb. 2—Hearing on Board's enforcement proceeding against Transocean Air Lines. (Docket 3244.)

Feb. 8—Hearing on Florida trunkline service. Postponed from Feb. 2. (Docket 2215 et al.)

Feb. 14—Hearing on Board's enforcement proceeding against Nats Air Transportation Service. (Docket 3456.)

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Jan. 5, 1949—Florida Flying Alligator Club, 14th annual reunion, Melbourne, Fla.

Jan. 7-9—Miami All American Air Maneuvers, Miami, Fla.

Jan. 10-11—National Aircraft Standards Council steering committee meeting, AIA offices, Hollywood, Calif.

Jan. 10-14—Materials Handling Show, sponsored by the American Society of Mechanical Engineers, Convention Hall, Phila.

Jan. 10-14—Society of Automotive Engineers, Annual Meeting and Engineering Display, Hotel Book-Cadillac, Detroit, Mich.

Jan. 11—ICAO Communications division, Montreal.

Jan. 12—SAE annual meeting dinner, Detroit Masonic Temple.

Jan. 12-14—Commercial Spray Operators conference, University of Illinois, Urbana, Ill.

Jan. 13-14—Fourth NAS Council meeting, AIA offices, Hollywood, Calif.

Jan. 13-14—National Aircraft Standards Council meeting, Los Angeles.

Jan. 18-Feb. 11—Third Air Transportation Institute, American University, Washington, D. C.

Jan. 20-22—"Minute Plant" conference, Society for Advancement of Management (panel discussions on procurement program and industrial preparedness), Chicago.

Jan. 24—Honors Night dinner, Institute of the Aeronautical Sciences, Hotel Astor, New York City.

Jan. 24-27—IAS seventeenth annual meeting, Hotel Astor, New York City.

Jan. 27—Society of Automotive Engineers, metropolitan section, fuels and lubricants meeting, Engineering Societies Bldg., New York City.

Feb. 8—ICAO Operations division, Montreal.

Feb. 22—ICAO Airworthiness division Montreal.

Mar. 3—Society of Automotive Engineers, metropolitan section, air transport meeting, Engineering Societies Bldg., New York City.

Mar. 10-12—Annual meeting of American Society of Tool Engineers, Hotel William Penn, Pittsburgh.

Apr. 3-6—American Association of Airport Executives, Oklahoma City.

Apr. 11-13—Society of Automotive Engineers national aeronautic and air transport meeting, Hotel New Yorker, New York.

Apr. 11-16—Western Metal Congress and Exposition, sponsored by American Society for Metals, Shrine Civic Auditorium, Los Angeles, Calif.

May 23-24—Annual meeting of The Magnesium Assn., Edgewater Beach Hotel, Chicago.

July 3-4—First Annual Southern California International Air Race, Long Beach.

July 13—ICAO North Pacific regional air navigation meeting, Seattle.

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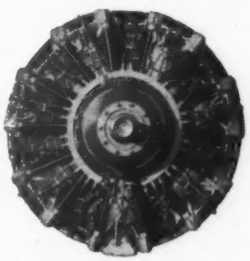

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STRICTLY PERSONAL

SLICK'S LITTLE PEPPERS—Take it from Slick's public relations chief, Ray Neumann, life is rough in the air freight business. This is proved by a rare teletype one surprised Pat Easley received Dec. 20 from his Newark Station Manager Don Royer. Easley is San Antonio District Sales Manager. Slick's enterprising salesmen are always displaying samples of winter produce up north, hoping to lasso some new regular consignees, but it's usually pretty prosaic. So imagine Easley's astonishment when his usually unhumorous teletype spit this out all at once:

So I TAKE THE PEPPERS OVER TO WASHINGTON MARKET IN N. Y. I AM WANDERING HERE AND THERE WHEN A BIG RED-FACED, FAT GUY WITH A SHINY BADGE SAYS HEY BUD, WHERE'S YOUR PEDDLER'S LICENSE, SO I SAY I AM VERY SORRY BUT I DO NOT HAVE ONE. SO THEN HE SAYS O, A WISE GUY FROM JOISEY. MAKE TRACKS FOR THE HOLLAND TUNNEL BUD, TWO BLOCKS DOWN ON YOUR LEFT. SO I LOAD ALL THE PEPPERS BACK IN MY CHEVY AND HEAD FOR THE TUNNEL. AT THE INTERSECTION OF VARICK AND GRANT I STOP AT A RED LIGHT AND A LITTLE SKINNY RUNT RAMS INTO THE BACK OF MY CHEVY, SPILLING THE PEPPERS ALL OVER VARICK. I AM VERY IRATE, AND THE LITTLE RUNT SAYS HE IS VERY SORRY, BUT HE CANNOT STOP ON ALL THE ICE AND SNOW AND HE SAYS BY THE WAY THOSE ARE VERY NICE PEPPERS AND I OWN A PIZZERIA AND I DEAL IN PEPPERS AND OTHER SUCH ITALIAN FOOD. SO THE GUY AGREES TO GIVE ME A BUCK A BOX FOR THE PEPPERS AND AFTER I EXPLAIN TO HIM THE FINE QUALITY OF THE PEPPERS COMING ALL THE WAY UP FROM TEXAS HE AGREES TO PAY A BUCK THIRTY-FIVE. BY THE WAY, SAYS HE, DO YOU HAVE A PEDDLER'S LICENSE. SO, BEING AS THIS RUNT IS NOT A COP, I JERK OUT MY ARMY INSTRUMENT CARD, AND HE SAYS GEE, I DIDN'T KNOW THE NEW PEDDLER'S LICENSES WERE GREEN. SO HE GIVES ME $27 AND I COME THROUGH THE HOLLAND TUNNEL BACK TO NEWARK WITHOUT THE PEPPERS AND WITHOUT THE BACK END OF MY CHEVY. ROYER.

* * *

BOAC ENTERTAINS ITS PASSENGERS—Thanks to G. A. W. Wynne, BOAC's western division publicity chief, for this latest proof that British Overseas entertains its passengers in otherwise dull moments:

The station superintendent in Iceland was explaining the virtues of civil aviation to passengers the other day while their plane was being fueled. He had a receptive audience, especially one man, slight in build and unassuming in manner, who encouraged the lecturer to please go on.

The super warmed to his subject and threw in a few remarks about BOAC's accomplishments, including a mention of the record flight made by a BOAC captain in a Constellation from Goose to Keflavik. This flight, the lecturer pointed out, with the help of tail winds was made in a faster time than that achieved by the jets which recently crossed the Atlantic.

The superintendent was appalled later to find the slight man was Sir Frank Whittle, father of the jet gas turbine.

* * *

VPS MUST NOT READ THIS—Whitey Rimes, a Hollywood travel agent, says Howard Hughes dropped in his agency the other day, petulantly pointed to an Air America window card and asked, "How can they operate profitably on $99 coast-to-coast fares?"

"They have no vice presidents," Rimes said.

Hughes guffawed, gathered up a stack of sky-coach literature, and left.

* * *

BITS ABOUT PEOPLE—**John O'Connell,** well known for his seven years with Curtiss-Wright as public relations manager and later assistant to the vice president, is named public relations director of ATF, Incorporated. This is the parent company of American Type Founders, Inc., Daystrom Corp., steel furniture maker; Daystrom Laminates, Inc., Frederick Hart & Co., electronic manufacturer . . . Aviation people eagerly awaited **Dick Boutelle's** Christmas present this year. It was to be a book of Air Force and Navy songs, including the two ditties, "The 80,000 Tons That Disappeared," written by USAF **Capt. Dave Olds,** and "The Bomber Flies 10,000 Miles," by Navy's **Lt. B. J. Robison.**

* * *

COLUMN NEEDS COPY—If an ad appears in this space next week it means more than a ringing cash register. It means we didn't receive enough stories to fill the column. If there are any readers of this department will they prepare and mail their humorous ancedotes to AVIATION WEEK, 330 West 42nd St., New York City.

R. H. W.

WHAT'S NEW

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"Bulletin 261," a descriptive folder on the use of hydraulic elevating tables for transporting and leveling strips and sheets to proper working height. Available from LYON-Raymond Corp., 7082 Madison St., Greene, N. Y.

"Beating Back the Blizzards," a 12-page illustrated folder on snow removal. Available from Caterpillar Tractor Co., Peoria 8, Ill. Ask for Form 11699.

"General Radio Experimenter," an 8-page bulletin on company equipment, available from General Radio Co., 275 Massachusetts Ave., Cambridge 39, Mass.

"Micro Tips," a 4-page bulletin, illustrated, on uses of snap-action switches. Available from Micro Switch, Freeport, Ill.

"For Low Cost Metal Parts," bulletin 4803 discusses in detail advantages of hydraulic die casting. Available from the Hydraulic Press Manufacturing Co., Mount Gilead, Ohio.

"Airport Zoning," a 76-page bulletin published by the University of Illinois Institute of Aeronautics. The fourth in a series of aeronautics bulletins, Airport Zoning is written by J. Nelson Young, assistant professor of law, University of Illinois.

"Airconomy Plan" is the subject of a 22-page booklet distributed by American Airlines to business managements, outlining principal air services. Available upon request from R. E. S. Deichler, vice president sales, American Airlines, 100 E. 42nd St., New York 17, N. Y.

New Films

"The Airport," a one-reel 16mm black and white sound film, produced especially for primary school children, shows in detail the varied operations that take place at practically any airport in the world. Available for sale or rental from Encyclopedia Britannica Films Inc., Wilmette, Ill.

McGraw-Hill Books

"General Cartography," by Raisz, presenting the subject of map-making in clear understandable terms, with a minimum of mathematics.

"Etiquette in Business," by Carney, giving definite answers to the hundreds of questions of etiquette that come up in business.

"Radio Operating Questions and Answers," by Nilson and Hornung, for those preparing to take radio operator license examinations. All books available from the McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y.

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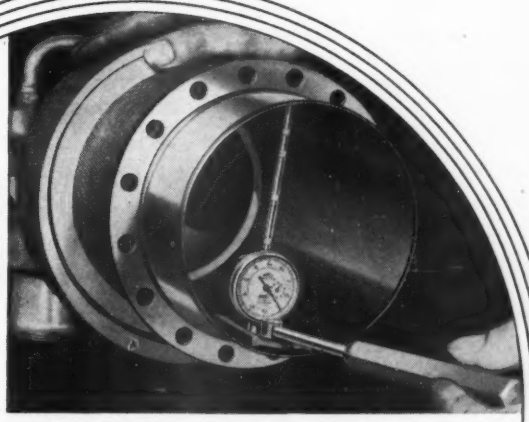

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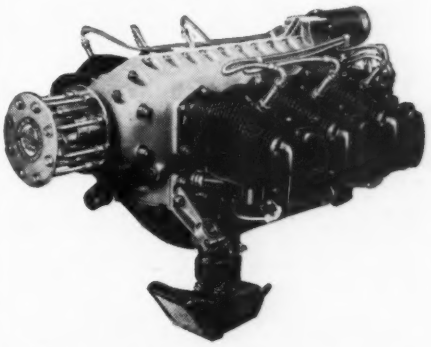
The coast-to-coast network of Continental stations is now backed up by two new master parts depots — at Los Angeles and Dallas — and service headquarters at Muskegon has been reorganized and streamlined for faster delivery of parts. For Continental knows the part that service has played, and is playing, in making Continental engines fliers' first choice.



Foreign service

The Continental C125 has been adopted for many of the personal and executive planes now being designed or manufactured in Europe, Asia and South America.

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Lift the Ceiling on Mercy Copters

Emergencies dramatize our shortcomings. Recently the Berlin airlift has spotlighted the Air Force's underestimate of what transport planes could do, and the alarming shortage of this country's air transport reserve.

Now, in Greenland, first seven and later 12 plane-wrecked men are marooned up to 19 days on an ice cap because of a shortage of the right helicopters.

Months ago AVIATION WEEK pointed out on this page that all of the military services had failed to realize the helicopter's possibilities.

In these days when military thinking appears to be dominated by 10,000 mile ranges and tremendous B-36 type aircraft, or super aircraft carriers, with deadly cargoes of A-bombs, it is no surprise if military requirements officers and budget officials find it easier to omit or strike out funds for that new, gangling prodigy, the helicopter. This despite the fact that a few canny officers are discovering new war uses for the helicopter all the time, but that is another story.

Certainly, it is difficult to understand why the helicopter, which has even in its brief useful lifetime hung up an amazing life-saving record, should not be allowed sufficient funds to equip Air Rescue Service with the latest standard and experimental copters to assure rescue activity under as wide a range of conditions as the state of rotating wing development permits.

The Air Rescue Service is a joint service group, under MATS. Its mission is the saving of human life everywhere—on land, sea, or in the air, whether civilian or military. But as the Greenland incident shows so well, it was not equipped to meet the emergency.

The Air Force did have some obsolescent Sikorsky R-5 helicopter equipment in the Greenland area, but it was unable to take on a 220 mile round trip requirement against winds that never dropped below 50 miles an hour. One Washington writer said the Air Force accepted the Navy's offer only after the USAF decided it had no helicopters that would do this job.

The fact that the Marines were able to scrape up five large helicopters on such short notice reflects that service's keener appreciation of this type of craft. The Marines are hardly our delegated special rescue unit. The Air Rescue Service is, but its purse has been kept too tightly shut by policy makers above it. Aboard the Saipan, which was speeding to Greenland when the rescue was made by the Air Force, were three experimental Piasecki copters and two special Sikorskys, which were sent from the Patuxent Air Base by order of the chief of naval operations. Yet neither of these types had had any appreciable amount of cold weather operation, which is another indication of how far it was necessary to reach for any modern helicopters.

In any appraisal of service attitudes toward the helicopter, it must be said in fairness to the Navy that this service some time ago adopted a firm policy of replacing the seaplanes on all of its battleships and cruisers with helicopters.

As the Air Force sent in its only jet-assist, ski-equipped C-47, which made the final Greenland rescue, the USAF was moving in a cold-weather, ski-equipped Cessna and a bush pilot to fly it, and a third glider—two others failed—was being prepared.

The Navy, meanwhile, canceled Christmas leaves of the hundreds in the Saipan's crew, moved the five copters to Norfolk, and dispatched the ship toward Greenland through 100 mile an hour winds.

The lives of 12 men were saved, and those who participated in the rescue work deserve congratulation. But the combined moneys spent by the various government agencies in this single operation would have paid for several of the most modern helicopters, or for worthy helicopter research or development for rescue purposes.

In the recent Greenland episode, the breaks were lucky. All of those stranded were men. One was a flight surgeon. All were service personnel, apparently in good health, with some training or experience in survival techniques.

One wonders what might have happened if the military C-47 had been a bigger commercial airliner with the usual manifest of children and civilian men and women of varying age and physical condition.

We ask this question of the top policy officials and officers of our military services who have been slow or reluctant to give the helicopter its due.

The little experimental and development work ordered so far has been insufficient and far out of proportion to the helicopter's possibilities in life saving alone, as this most recent and spectacular 19-day episode proves so well.

Hindsight is easy. But it is futile, too, unless we learn something by it, and adjust future policies on experience. It is seldom that a lesson is so obvious as it is this time. And seldom that we learn our lesson in an emergency at a cost of no human life. Shall we be so lucky again? Can survivors last 19 days next time?

ROBERT H. WOOD

In new plane production

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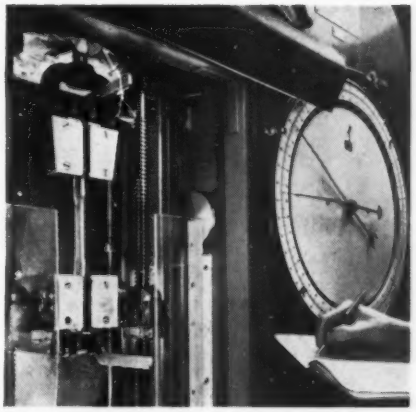

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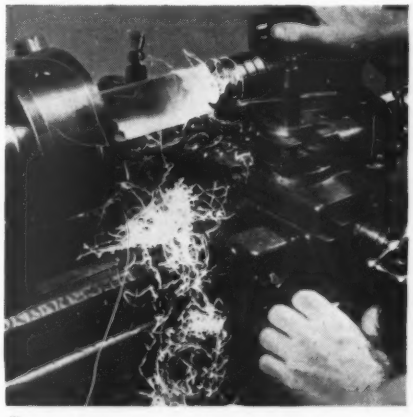

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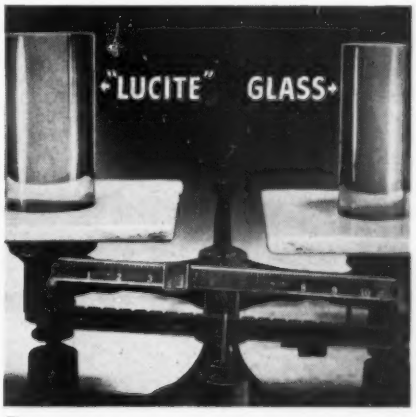

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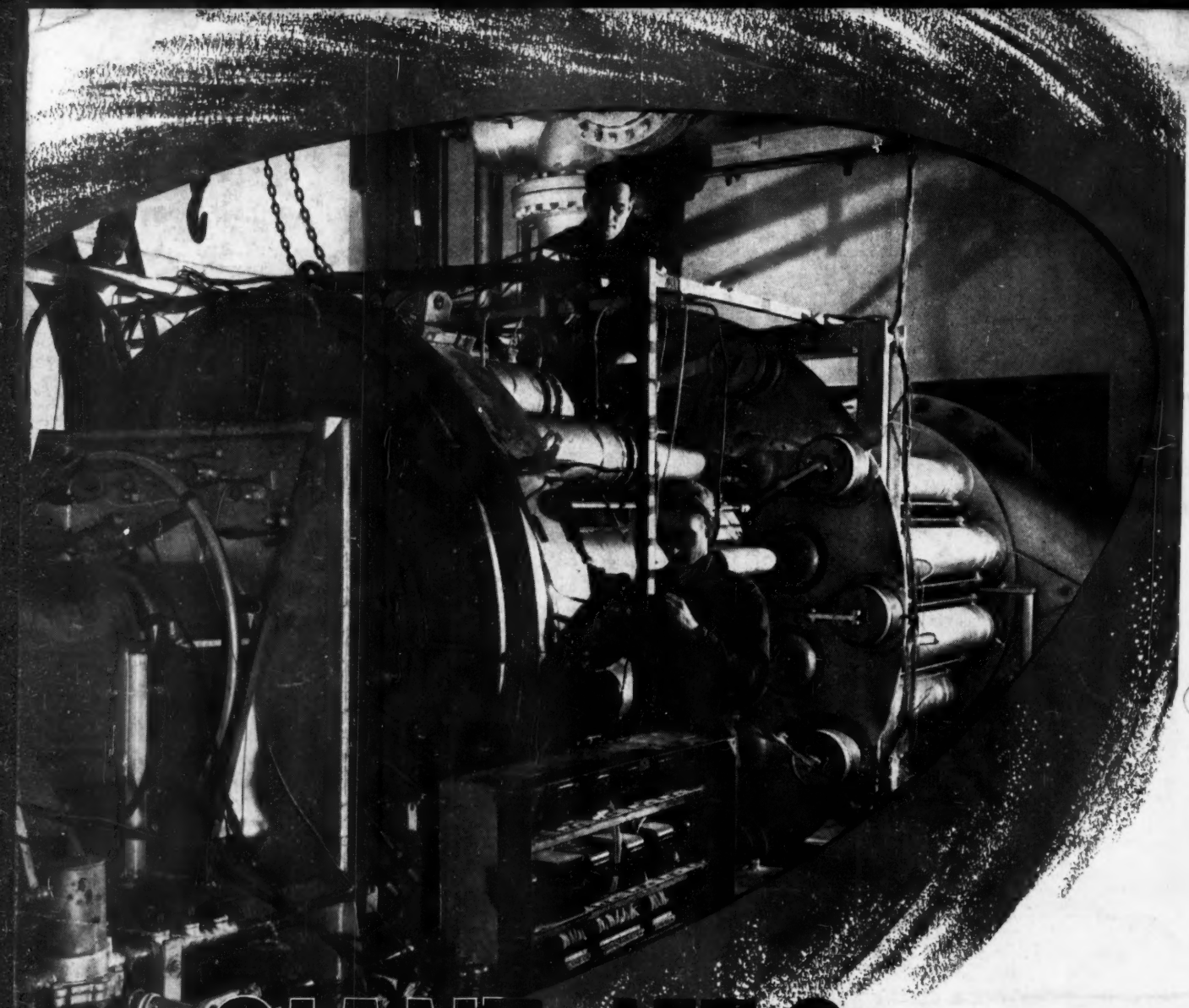

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This huge structure is not an oversize jet engine, although the resemblance is striking. Actually it's the modern test stand for jet engine turbine elements at General Electric's new jet aircraft gas turbine laboratory in Lynn, Mass., where turbines as large as 30,000 horsepower will be tested under simulated operating conditions.

This fine laboratory is part of the $25,000,000 center for the development, testing and production of aircraft jet engines. The new facilities are the largest and most outstanding of their kind, and constitute part of G.E.'s long-range program in the jet propulsion field—a program started when General Electric built the first jet engine for the Air Force.

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